DOCUMENT RESUME

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ABSTRACT

This curriculum module, one of seven developed by the "Infusion Project," offers information and lessons on drug use prevention for integration into an existing seventh-grade middle school science curriculum. The module, based on a type of interactive learning called infusion learning, contains 12 lessons, each providing objectives, a list of resource materials, suggested student activities, suggestions for additional classroom or out-of-class activities and teacher tips. Many lessons come with one or more work sheets for reproduction. The lesson topics include: reaction time--alcohol and drugs; over the counter drugs; a peer drug use survey; cell membrane; plant growth; the respiratory system; the scientific method; lab safety; oxidation-blood alcohol content; fungi hallucinogens; stimulants and depressants and invertebrate animals; and pulse rate and smoking (the circulatory system). Also supplied are 14 informational plates for reproduction primarily on physiological effects of drugs on the body. Also included is "Just the Facts," a set of information units for teachers on alcohol, amphetamines, barbiturates, children of alcoholics, cocaine, designer drugs, driving under the influence, eating disorders, inhalants, lysergic acid diethylamide, marijuana, nutrition, opiates, phencyclidine (PCP), steroids and tobacco. There is also a general brochure which introduces the program. (JB)

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ED337122

INFUSION
PROJECT
Preventing Alcohol & Drug Use

Infusing [illegible] Prevention with Exist[illegible]m Study Units

HE 024 966

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Major objectives of the project are to:

- increase access to the information on programs, policies, and curricula developed by Network member institutions;
- encourage the use of the ERIC system by Network member institutions;
- improve the Network's ability to know about, and share information on activities at member institutions; and
- test a model for collaboration with ERIC that other national agencies might adopt.

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VALENCIA
Community College

July 2, 1991

Valencia Community College is pleased to be distributing the curriculum infusion modules to you. The modules were produced as a result of a Drug-Free Schools and Communities Training and Demonstration grant in cooperation with the Orange County School system.

One of the key elements of the successful implementation of the modules during the piloting phase of this project was the intensive alcohol and other drug abuse prevention training that was provided to the participating middle school teachers. This training was also a model for the teachers in identifying interactive learning techniques and in implementing these techniques in the classroom. The teacher's guide, located on the inside flap of each notebook, will offer additional information on interactive learning. It is optimal for the teacher to perceive their role as a facilitator, as opposed to a lecturer, with this curriculum.

If you have any questions regarding the project or the workshop, please contact me as follows.

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Thank you for your interest in Project Infusion. Your opinions and feedback are welcomed.

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SCIENCE

REACTION TIME - ALCOHOL AND DRUGS

SUBJECT OBJECTIVE

Students will be able to give examples of how the nervous system mechanism serves them.

PREVENTION OBJECTIVE

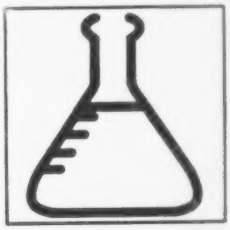
Students will give examples of how drugs can effect the body.

Materials/Resources

1. Meter sticks (one per every two students).
2. A blank transparency.
3. Supplementary Materials for Teachers Plates A, B, and N (Science Resource Section)
4. Teacher Background Information: Reaction time chart and discussion options
5. Student Handout: "Reaction Time Lab"

Procedures/Activities

1. Make transparency of Teacher Background Information: "Reaction Time Chart and Discussion Options".
2. Review nervous system (see teacher tip).
3. After grouping students into pairs, distribute Student Handout: "Reaction Time Lab". Allow 10 to 15 minutes for teams to complete handout.
4. Review student findings with whole class and guide students in making inferences concerning the affects of alcohol on reaction time. Use discussion questions on transparency as a guide.



Grade level
7

Teacher Tips:

Critical thinking will facilitate prevention infusion. Suggested questions: What did I learn? What about the activity surprised me? What was I thinking about during the experience? What will I try to change?

TEACHER BACKGROUND INFORMATION

Reaction time chart and discussion options

1. Discuss students' response to questions 1 and 2 of Activity 1.

2. Check students response to question 1 and 2 of Activity 2.

3. Develop student responses for question 3.

4. Ask students what affect do they think alcohol would have on both activities.

5. Refer to Plates A, B, C and N (Science Resource Section) for further expansion or discussion.

Table B

Distance in cm	**Reaction time in sec.**
6	0.11
8	0.13
10	0.14
12	0.16
14	0.17
16	0.18
18	0.19
20	0.20
22	0.21
24	0.22
26	0.23
28	0.24
30	0.25
32	0.26
34	0.26
36	0.27
38	0.28
40	0.29
42	0.29
44	0.30
46	0.31
48	0.31
50	0.32
52	0.33
54	0.33
56	0.34
58	0.34
60	0.35

STUDENT HANDOUT

Reaction Time Lab

Activity 1: Determine reaction time.

1. With arm resting on table, have your partner hold a meter stick at the 0 centimeter point between your thumb and index finger. Your fingers should be about 5 cm apart. (See diagram)
2. Watch the meter stick and when your partner drops it, quickly catch it. Record the distance the meter stick fell on Table A.
3. Repeat step #2 four more times. Compute your average by adding the five trials and dividing by 5. Record your computed average.
4. Refer to Table B (on overhead) for the number closest to your average. Read the reaction time and record on Table A.
5. Change role with partner.

Table A

Trial	**Student #1 Distance in cm**	**Student #2 Distance in cm**
1		
2		
3		
4		
5		
Average		

Reaction Time:

1. Three things that could shorten your reaction time are:

    1. ____________________

    2. ____________________

    3. ____________________

2. Three things that could lengthen your reaction time are:

    1. ____________________

    2. ____________________

    3. ____________________

Activity 2: Stopping distance of car and reaction time

The diagram shows cars traveling down a road and another car is parked 250 ft. ahead.

1. How much reaction distance will car A need to avoid a crash?

Car A ____________________

Car B ____________________

Car C ____________________

2. How much stopping distance will car A need to avoid a crash?

Car A ____________________

Car B ____________________

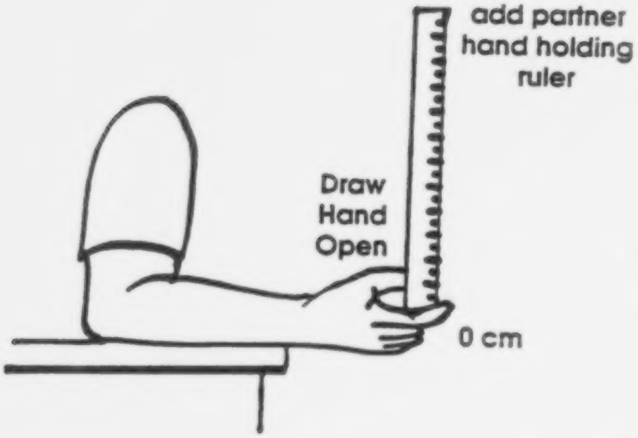
Car C ____________________

3. What other information or conclusion can you form from the information presented in the diagram?

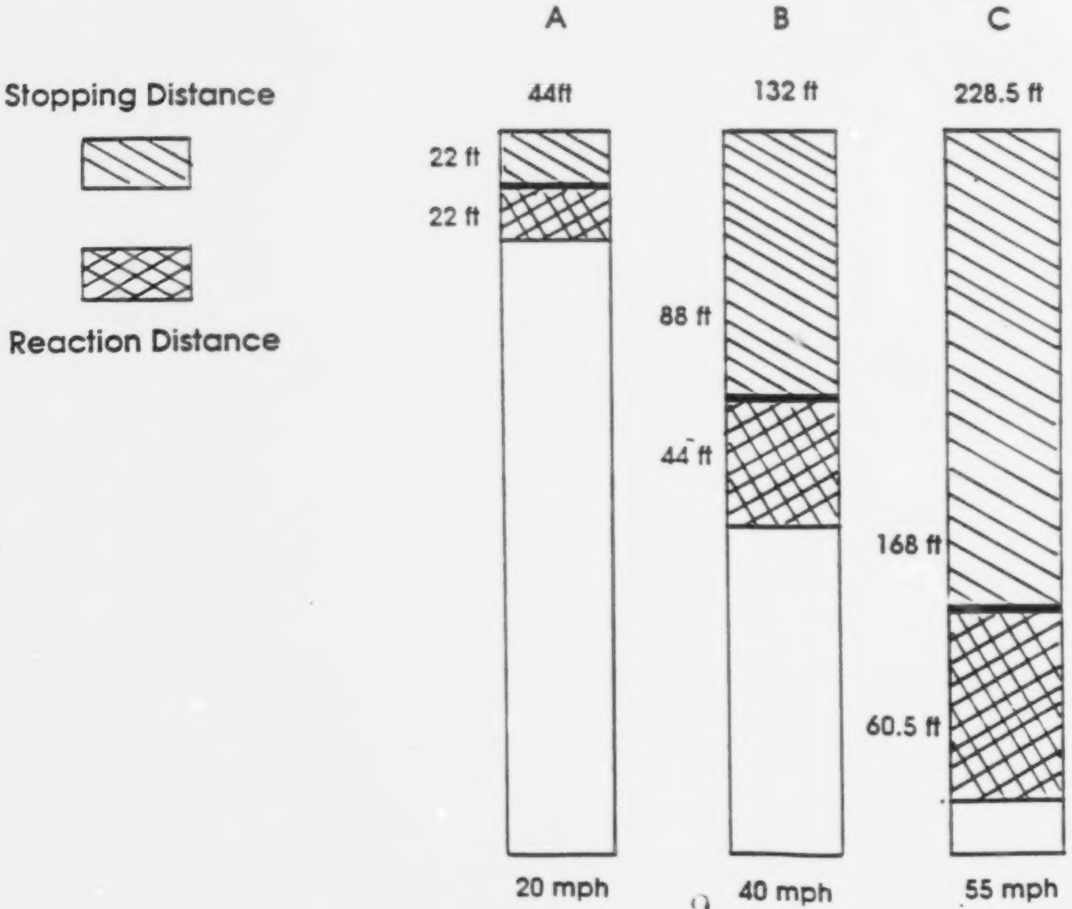
____

____

ACTIVITY 1: Determining Reaction Time


add partner hand holding ruler
Draw Hand Open
0 cm

ACTIVITY 2 : Stopping Distance of Car and Reaction Time



SCIENCE

OVER THE COUNTER DRUGS

SUBJECT OBJECTIVE

Students will obtain and analyze over-the-counter drug labels to develop a healthy and safer lifestyle.

PREVENTION OBJECTIVE

Students will identify safety precautions to be taken when using over-the-counter (OTC) drugs.

MATERIALS/RESOURCES

1. Student Handout:
   "Investigating Over-the -Counter (OTC) Drugs"
2. Empty boxes and bottles of various over-the-counter drugs. Products should include the following types of drugs:
   a. pain relievers - aspirin (ex. Bayer), acetaminophens (ex. Tylenol), ibuprofen (ex. Advil)
   b. antacids
   c. antihistimines - (cold medicine)
   d. laxatives
   e. antidiarrrhea

PROCEDURES/ACTIVITIES

1. Divide students into cooperative groups.
2. Distribute Student Handout/Transparency "Investigating Over-The-Counter Drugs (OTC)" and 2 or 3 product containers to each group.
3. Students work together to find information requested in handout. Suggestion: To make comparisons of products information easier, give groups products which belong to the same product type.
4. Allow time at the end of class for each group to present their findings and/or conclusions.

EXTENSION ACTIVITIES

Invite students to reexamine the containers for scientific terms or symbols. Groups or whole class could develop guidelines for the use of over-the-counter drugs. A follow up lesson or brief

Grade level
7

Teacher Tips:

Critical thinking will facilitate prevention infusion. Suggested questions: What did I learn? What did I learn about myself? How am I going to be different after this investigation?

A week before the activity have students begin bringing in empty OTC containers.

STUDENT HANDOUT

INVESTIGATING OVER-THE-COUNTER (OTC) DRUGS

Part A. Product Label Information

1. The product name is ______

2. It is manufactured by ______

whose address is ______

3. The net quality of contents (such as number of tablets or volume) is ______

4. The ingredients in the medicine are ______

______

Part B. Directions For Safe Use By The Customer

5. Dose for adults is ______

Dose for child is ______

6. How frequently can it be taken? ______

7. Total dose that should be taken in a day is ______

8. What is the limit of treatment or number of days it can be taken? ______

9. What is the first aid steps for overdose? ______

______

Part C. Warnings, Etc.

10. Are there any cautions? ______

If so, what are they? ______

11. Side effects? ______

12. Expiration date? ______

GROUP REPORT

1. The product ______

is used for ______.

2. It should not ______.

3. Other similar OTC products are ______.

4. They are different because ______

______.

SCIENCE

ANALYZING DATA - PEER DRUG USE SURVEY

SUBJECT OBJECTIVE

Student will demonstrate methods used by scientists to acquire, gather, analyze and interpret data.

PREVENTION OBJECTIVE

Student will compare and contrast their school's peer drug use with the national norm.

Materials/Resources

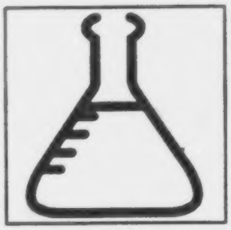
1. Two blank transparencies.
2. Rulers for graphing.
3. Student Transparency "Drug Use Surveys" and "Drug Use Questions
4. Student Transparency "Drug Use Graphs."
5. Student Handout "Quiz."
6. Teacher Background Information: "Data Gathering."

Procedure/ Activities

1. Orally administer the "Peer Drug Use" survey to all classes. This is located in "Teacher Background Information."
2. Have students help tally the results.
3. Provide results to students for comparison and contrast with the "National Household Survey on Drug Abuse" results. Both are found on Student Transparency "Drug Use Surveys."
4. Administer student handout "Quiz."

Extension Activities

1. Have student compose a bar graph of "current" substance use as well as the required "lifetime" bar graph.
2. Invite a resource person from a local drug clinic to give a class presentation.
3. Have students fill out the 'Healthstyle Self Quiz and Contract" on Plates D and E (Science Resource Section).



Grade level
7

Teacher Tips:

Critical thinking will facilitate prevention infusion.
Suggested questions: What did I learn? What about the activity surprised me most? How am I going to be different after this activity?

1. Allow students to use calculators when figuring data.
2. Provide survey results in numbers, requiring students to find percentages.
3. The survey should be totally voluntary and completely anonymous.
4. This is a good Cooperative Group Activity
5. This activity can be broken down into segments of three days.
6. "Teacher Background Information" and "Peer Drug Use" questions to survey students with.
7. Supplementary materials for teacher; "National Household Survey on Drug Abuse" in Plate I (Science Resource Section).

DATA GATHERING

TEACHER BACKGROUND INFORMATION

Part I: Acquiring Data

Day 1 (Estimated Time: 15 minutes)

1. Ask students to voluntarily take part in a survey of drug use.
2. Stress to students that the survey is both voluntary and anonymous.
3. Orally read the provided questions from "Peer Drug Use Survey Questions".
4. Have students answer "yes" or "no" to questions on their paper.
5. Have students fold and place their surveys in a paper bag.
6. Collect data from all classes before beginning to tally responses.

Part II: Gathering Data

Day 2 (Estimated Time: 15 minutes)

1. Have each class help in the gathering of data results.
2. Give one survey to each student to analyze and tally.
3. Go through each question, asking students to raise a hand for any "yes" answer. Tally the "yes" answers.
4. Don't forget to count the number of surveys distributed to each class to achieve a total who took the survey.
5. At the end of the day, tally the number of responses, recording them into the student transparency "Drug Use Survey".

Part III: Analyzing and Interpreting Data

Day 3 (Estimated Time: one class period)

1. Provide classes with the "Drug Use Surveys" student transparency. For a complete copy of the "National Household Survey on Drug Abuse" see Plate I (Science Resource Section).
2. Have students work the percentage of the given numbers and fill these results in on the overhead.
3. Provide classes with the "Drug Use Graphs" student handout.
4. Have students plot the "lifetime" use findings on their handout, while referring to the "Drug Use Survey" transparency.
5. Allow students to use both the "Drug Use Survey" transparency and their "Drug Use Graph" student handout to complete the student handout "Quiz".

PEER DRUG USE SURVEY

NATIONAL HOUSEHOLD PEER DRUG USE SURVEY

SUBSTANCE SURVEY ON DRUG USE

AT ______________________________SCHOOL

	PERCENT USING AGES 12-17	NUMBER USING	PERCENT USING GRADE ________
MARIJIANA			
LIFETIME	23.7		
CURRENT	12.2		
COCAINE			
LIFETIME	5.2		
CURRENT	1.7		
INHALANTS			
LIFETIME	9.1		
CURRENT	3.4		
HALLUCINOGENS			
LIFETIME	3.2		
CURRENT	1.1		
AMPHETAMINES			
LIFETIME	5.5		
CURRENT	1.6		
SEDATIVES			
LIFETIME	4.0		
CURRENT	1.0		
ALCOHOL			
LIFETIME	55.9		
CURRENT	31.4		
CIGARETTES			
LIFETIME	45.3		
CURRENT	31.4		
OTHER ILLEGAL DRUGS			
LIFETIME	29.6		
CURRENT	15.1		
TOTAL NUMBER			

* Lifetime use = use at least once

* Current use = use at least once in last month

STUDENT HANDOUT 'QUIZ'

☞ **Directions:**

Using both the **"Drug Use Survey"** transparency and your own **"Drug Use Graph"**. answer the question below.

1. Using the **"Drug Use Survey"** answer these questions:

   a. Nationally, what percent of 12-17 years olds currently use alcohol?
   b. School wide, what percent of your peers use alcohol?
   c. Which survey indicates a greater use of alcohol?

2. Which substance do your peers currently use most?

3. Which substance have more of your peer tried at least once?

4. In which lifetime use substance catagory was there the closest comparison between the national survey and your school survey?

5. In which lifetime use substance catagory was there the greatest contrast between the national survey and your school survey?

6. Which drug catagory in your school survey shows the least amount of lifetime use?

7. How many students took part in your school survey?

8. What is the difference between "lifetime use" and "current use" ?

9. Which finding suprised you most? Explain your answer.

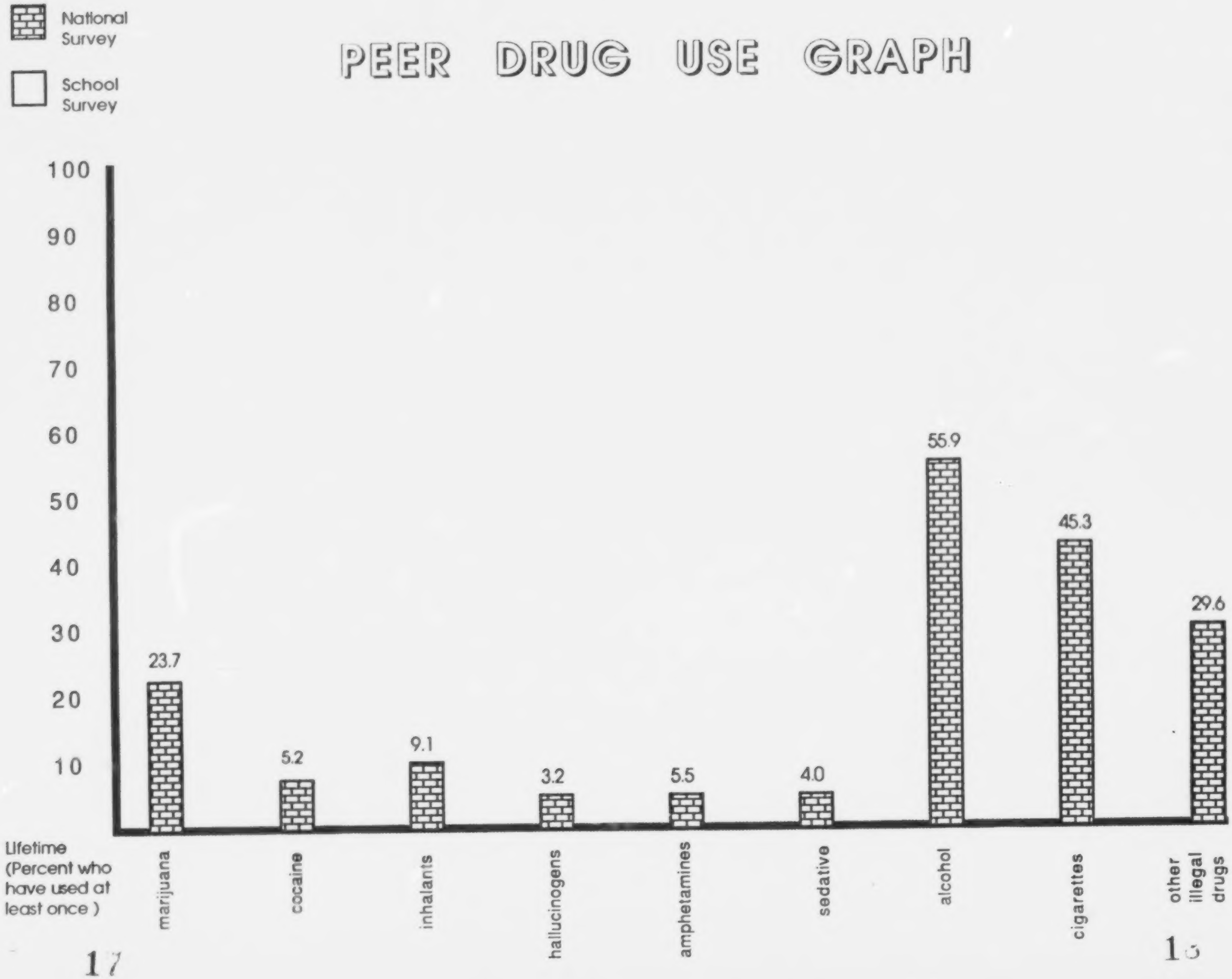
10. Write a brief paragraph (30 words) that describes how your school's lifetime drug use compares with national norm.

DRUG USE SURVEY STATEMENTS

Read these statements orally to students.

1. I have used marijuana.
2. I have used marijuana in the last month.
3. I have used cocaine.
4. I have used cocaine or crack in the last month.
5. I have used inhalants (such as glue or gas fumes).
6. I have used inhalants in the last month.
7. I have used hallucinogens (such as LSD or PCP).
8. I have used hallucinogens in the last month.
9. I have used amphetamines (speed) in an illegal way.
10. I have used amphetamines in an illegal way in the last month.
11. I have used sedatives (such as tranquilizers) in an illegal way.
12. I have used sedatives in an illegal way in the last month.
13. I have used alcohol.
14. I have used alcohol in the last month.
15. I have used cigarettes.
16. I have used cigarettes in the last month.
17. I have used other illegal drugs (such as steroids).
18. I have used other illegal drugs in the last month.

PEER DRUG USE GRAPH



CELL MEMBRANE

SUBJECT OBJECTIVE

Students will identify characteristics and functions of a selectively permeable membrane and explain the process of diffusion and osmosis.

PREVENTION OBJECTIVE

Students will observe the negative effects of alcohol on the cells and use scientific information to develop a healthy lifestyle.

Materials/Resources

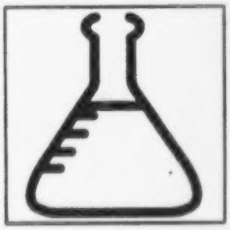
1. Supplementary Materials for Teacher Plate A and B(Science Resource Section)
2. Teacher Background Information: "Egg Demo"
3. Data Table

Procedures/Activities

1. Follow the procedure as explained in Teacher Background Information: "Egg Demo".
2. Student handout/Transparency "Egg Demo Data" should be used to record demo data.

Extension Activities

Student may work individually or in a small group to research other effects of alcohol. Encourage students to make a presentation in the form of a poster, poem, video etc. on the effects of alcohol on the brain.



Grade level 7

Teacher Tips:

Critical thinking will facilitate prevention infusion.
Suggested questions: What did I learn? What about the activity surprised me? What will I start or stop doing after this experience?

This demonstration is well worth the time ! Teachers have found themselves referring to the egg demo to clarify numerous scientific concepts covered later in the year.

Use three eggs for each solution.

Data Table

Day	Egg A Weight	Egg B Weight	Egg C Weight	Egg D Weight
Day 1				
Day 2				
Day 3				
Day 4				

1. Which egg was the control?
2. What happened to the egg in cup B, C, and D by day #3?
3. What happened to the egg in cup B by day #4?
4. What happened to the egg in cup C by day #4
5. Why did the egg in corn syrup change shape?
6. Describe what happened to the egg in cup D by day #4?
7. What do you think accounted for this change?

Group or Whole Class Activity

Recall and discuss the T.V. drug related commercial that shows an egg dropping and then frying in a hot pan.

1. What was the message of the advertisement?
2. What ideas or information, if any, did you gain about the effects of drugs on the body from the egg in cup D?
3. Is there any similarities between the T.V. commercial and the egg demonstration? If so, what?

TEACHER BACKGROUND INFORMATION

EGG DEMO

Purpose: to determine characteristics of eggs when placed in solutions
Materials: dozen eggs, 4 clear plastic cups, scales, water, vinegar, corn syrup, alcohol
Procedure: This demonstration lab takes four days to complete.

Day #1

1. Weigh each of the eggs at your station. Record weight of each egg on data table.
2. Fill one cup 1/2 full of water - this is your control. Label this cup A
3. Label each of the remaining cups using letters B,C, and D.
4. Fill cups B, C, and D - 1/2 full of vinegar.
5. Gently place an egg into each cup.

Day #2

1. Carefully reach into cup A and remove the egg. (try to dry the egg before weighing it)
2. Carefully weigh the egg (Record).
3. Place egg back into the cup.
4. Repeat process for eggs B, C, and D.

Day #3

1. Carefully reach into cup A and remove egg. Weigh and record data. Place egg back into cup A.
2. Carefully remove the egg from cup B. Weigh and record data. Place egg back into the cup B.
3. Carefully remove the egg from cup C. Weigh and record data. Pour vinegar down sink and fill cup C 1/2 full of corn syrup. Place egg back in cup C.
4. Carefully remove the egg from cup D. Weigh and record data. Pour vinegar down and fill cup D 1/2 full of alcohol. Place egg back into cup D.

Day #4

1. Carefully remove the eggs and weigh. (Record)

Note:
Science related facts: Large amounts of protein are found in cells. Protein tends to absorb alcohol. Alcohol breaks down protein. Effects of the alcohol breaking down of protein can be seen in egg D part of demo.

SCIENCE

PLANT GROWTH

SUBJECT OBJECTIVE

Student will observe plant growth and describe effect of variables.

PREVENTION OBJECTIVE

Student will relate harmful effects of tar from tobacco on humans.

Materials/Resources

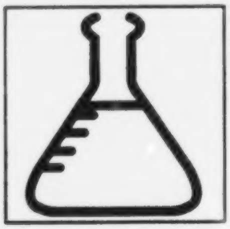
1. Supplementary material for teacher, Smoking Machine , Plate F
2. Growing plants (at least 4 per class)
3. Gloves
4. Teacher Demonstration Sheet: "The Effect Tar on Growing Plants"

Procedures/Activities

1. Teacher will demonstrate effect of tar on growing plants.
2. Student will observe results, which will be recorded on overhead transparency.

Extension Activities

1. Graph growth measurements.
2. Relate tar content of various tobacco products on chart or graph.
3. Use as other variables, alcohol, aspirin, cola, etc.



Grade level

7

Teacher Tips:

Critical thinking will facilitate prevention infusion. Suggested questions: What about the activity surprised me? How am I going to be different after this activity? What was I thinking during the activity?

Best to use several plants for each variable and control.

TEACHER DEMONSTRATION

The Effect of Tar on Growing Plants

1. Using the smoking machine drawn and described on Plate F, collect a sample of tar on a cotton pellet. Use gloves or wash hands when working with tar samples.

2. Wipe the stem of several growing plants with the tar-saturated pellet. Use plants with different leaf thickness.

3. Keep several of the same growing plants as controls (given normal amount of water and normal light, but no tar applied).

4. Note the difference over a period of time, and record on transparency.

5. Discussion with group:

    a. What effects does tar have on the plants?

    b. What is tar?

    c. What might occur in the human body when tissue is exposed to tobacco tar?

SCIENCE

RESPIRATORY SYSTEM

SUBJECT OBJECTIVE

Student will recognize the benefits of a healthy and fully functional respiratory system.

PREVENTION OBJECTIVE

Student will become aware of the harmful effects of tar on the respiratory system.

Materials/Resources

1. Clock or watch with a second hand.
2. Small straws, such as coffee or liquor stirrers.
3. For smoking machine materials refer to Plate F (Science Resource Section).

Procedure/Activities

1. Discuss the property of tar with student before beginning the activities.
2. The lab is divided into three parts, which are detailed in "Teacher Background Information".

Extension Activities

Invite a resource person form the American Cancer Society or the American Lung Association to give a class presentation. Complete the lab in this packet titles "Plant Growth". Have students complete the "Healthstyle Self Quiz" and contract on Plates D and E (Science Resource Section).

Grade level
7

Teacher Tips:

Critical thinking will facilitate prevention infusion.
Suggested questions: What did I learn? What about the activity surprises me? What will I start or stop doing after this experience?

Practice your smoking machine before demonstrating to students. Tar in marijuana smoke is 50% stronger than tar in cigarette smoke. This activity is most effective following an introduction to the respiratory system.

STUDENT HANDOUT

"EFFECTS OF SMOKING"

Part I. Breathing Rate

A. Measure your breathing rate for a variety of teacher led activities. Record data on the chart below.

Chart

Activities Breathing Rate

1 ______________________________
2 ______________________________
3 ______________________________
4 ______________________________
5 ______________________________

B. Answer the questions below.

1. Which activity caused the greatest increase in your breathing rate?

____

2. Is it healthy to increase your breathing rate in this manner? Explain your answer.

____

____

3. Why is a healthy respiratory system helpful to your heart?

____

Part III. Smoking Machine

A. After viewing the smoking machine demonstration, answer the questions below.

1. What happens to the lungs of a smoker?

____

2. List three ways you can tell a person is a smoker, even if they are not smoking at the time.

____

____

____

3. What are the symptoms that a smoker's lungs are being damaged?

____

4. What part of the smoking machine would compare to the following respiratory systems organs?

A. Lungs ______________________
B. Trachea ______________________

TEACHER BACKGROUND INFORMATION

Procedures for Breathing Rates, Smoking Machine and Effects of Emphysema.

Part I: Measure breathing rates (Estimated time = 15 minutes)

1. Have students measure their breathing while resting and with four other activities such as walking in place or jumping jacks.
2. Breathing rates should be measured for one minute, and should be calculated during the activity.
3. Discuss results.

Part II: Smoking Machine (Estimated time = 10 minutes)

1. Refer to Plate F (Science Resource Section), for construction and demonstration procedures of the smoking machine.
2. The smoking machine should be demonstrated by the teacher only in a well- ventilated room.
3. Discuss results.

Part III: Effects of Emphysema (Estimated time = 10 minutes)

1. Discuss with students the disease of emphysema. Information on this disease can be found in most health texts.
2. Pass out a straw to each student. Ask students to inhale and exhale only through the straw. Encourage students to stop if they begin to feel any discomfort.
3. Discuss results. Emphasizing that this is a close correlation to the symptoms of emphysema.

Part IV: Questions

1. Pass out a student handout "Effects of Smoking" to students.
2. Allow students to work with partner.

SCIENCE

SCIENTIFIC METHOD

SUBJECT OBJECTIVE

Students will use the scientific method to solve problems.

PREVENTION OBJECTIVE

Students will apply a decision making model in solving problems in drug related situation.

Materials/Resources

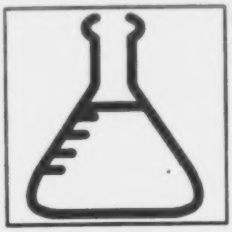
1. A blank transparency
2. Teacher Background Information:
   "Problem Solving Models and Situations"
3. Student Handout:
   "Using Decision Making in Problem Solving"

Procedures/Activities

1. Make a transparency of Teacher Background Information: "Problem Solving Models and Situations".
2. Review with the whole class the scientific method model and the decision making modules. Stress the similarities of both moduals and how they both can be used in problem solving. Point out differences.
3. Divide class in small groups and provide each group with three (3) copies of Students Handout "Problem Solving".
4. Read each of the three problem situations that appears on bottom of the transparency to the whole class. Groups are to complete the problem solving handout for each problem.
5. Use a whole class discussion to wrap-up the lesson.

Extension Activities:

1. Students may wish to make up their own situations for further decision making model practice.
2. Invite student group to role play the situation and the solutions.



Grade level
7

Teacher Tips:

Critical thinking will facilitate prevention infusion. Suggested questions: What did I learn? What did I learn about myself? What was I thinking during the activity? How am I going to be different after this activity?

It may be necessary to go through model using a problem situation before breaking into groups. Refer to Plate H (Science Resource Section).

TEACHER BACKGROUND INFORMATION

Problem Solving Models and Situations

Scientific Methods Model	**Decision Making Model**
1. State the problem.	1. State the situation and the decision to be made.
2. Gather information.	2. List possible choices or alternatives.
3. Form a hypothesis.	3. After evaluating and ranking alternatives, pick one.
4. Test hypothesis.	4. Try an alternative.
5. State the conclusion.	5. Evaluate.

(Retest or modify hypothesis if necessary)
Go back to step #3 for another alternative if necessary.

Problem Situations

1. Your locker partner is a very popular student. In your locker one morning you discover a small plastic bag with something that looks like marijuana.

2. Your school forbids the use of alcohol and other drugs. This also applies to school athletes. You agree with the policy. You realize that two of your teams's best players are using drugs before the game. They say openly that it increases their athletic performances.

3. One of your best friends begins spending more time with a crowd of people that are known to use alcohol and other drugs. Your friend invites you to join the group at a park after school.

STUDENT HANDOUT

Using Decision Making Model In Problem Solving

☞ Directions:

A. **Read one of the problem situations to the group.**
B. Fill in information on the decision making model below.

1. **State the situation and the decision to be made.**
(STATE THE PROBLEM)
SITUATION:

Decision to be made: ____________________

2. List possible choice or alternatives.
(GATHER INFORMATION)

Alternative #A ____________________

Alternative #B ____________________

Alternative #C ____________________

3. After evaluating and ranking alternatives pick one.
(FORM A HYPOTHESIS)

Problem: ____________________

	Alternative #A	**Alternative#B**	**Alternative #C**
List good point			
List bad points			
Rank each alternative			

4. Try an alternative
(TEST THE HYPOTHESIS)

To test your alternative role play the situation with members of your group.

5. **Evaluate. Go back to step #3 for another alternative if necessary.**
(STATE THE CONCLUSION)

Was the selected alternative or solution an acceptable one ? If yes, go to next situation. If no, go back to step #3 for next alternative and repeat steps 4 and 5.

SCIENCE

LAB SAFETY

SUBJECT OBJECTIVE

Students will observe safety techniques for science lab and discuss safety at home.

PREVENTION OBJECTIVE

Students will identify dangerous products at home and alert parents to potentially dangerous products at home and attempt safe storage/disposal.

Materials/Resources

1. Student handouts - "Lab Safety"
2. Supplementary materials for teacher : Plate H
3. Student Handout/Transparency : "Products that are potentially dangerous at home", "Rules for taking medicine", "Emergency!"

Procedure/Activities

1. Teacher will demonstrate/explain Student Handout "Lab Safety".
2. Group will discuss Handout/Transparency "Products that are potentially dangerous at home", "Rules for taking medicine", and "Emergency!"
   a. Discuss where items are stored at home.
   b. Discuss safe places and ways to store.

Extension Activities

Use healthstyle contract (Plate D and E) to discuss safety at home with both parents - they sign as witnesses.

Have students list 3 ways to get get rid of headache instead of taking medicine, suggesting examples of rest, exercise, sleep and massage.

Have students list 3 ways to fall asleep instead of taking sleeping pills, suggesting examples of more daily activity, talk to someone, read or warm milk. Have students list 3 ways to lose weight instead of taking diet pills. Suggest example of low-calorie food, exercise, no snacking or joining support group.

For additional home safety situations, use Plate H "What's your decision?"

Grade level
7

Teacher Tips:

Critical thinking will facilitate prevention infusion.
Suggested questions: What did I learn?
What was I thinking during the activity?
How am I going to be different after this activity?

STUDENT HANDOUT

Using a Compound Microscope

1. Learn the parts of a microscope

2. Use two hands to carry the microscope; grasp the arm of the microscope with one hand, and place your other hand under the base.

3. Clean the lenses with lens paper before use.

4. Turn the nosepiece until the low-power objective lens clicks into place.

5. Place the microscope slide of the specimen to be viewed directly over the hole in the stage.

6. Turn on the light or adjust the mirror to illuminate the specimen.

7. Never use direct sunlight as a light source; the reflected sunlight can damage your eyes.

8. Looking at the microscope from the side, turn the coarse adjustment until the objective lens is as close as possible to the stage but not touching the slide; never lower the objective lens while looking through the eyepiece.

9. Looking through the eyepiece, turn the coarse adjustment to move the objective lens away from the stage until the specimen to be viewed comes into focus.

10. To avoid eyestrain, keep both eyes open when looking through a microscope. If you wear eyeglasses, you will probably not need to wear them when looking through the microscope; however, wear your glasses if you have astigmatism.

11. Turn the fine adjustment to bring the specimen into sharper focus.

12. Adjust the diaphragm to alter the amount of light shining on the specimen.

13. Only after the specimen is as clear as possible under the low-power objective lens should the high-power objective lens be clicked into place.

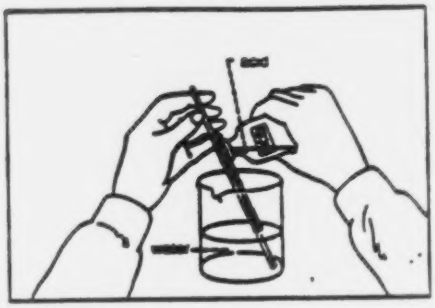
14. When you have finished using the microscope, turn the coarse adjustment to raised the objective lens from the specimen; remove the slide, and click the low-power objective lens into place.

15. With the coarse adjustment, lower the low-power objective lens as close as possible to the stage without touching the stage.

16. When you have finished preparing the microscope for storage, use both hands to carry the microscope to the storage area.

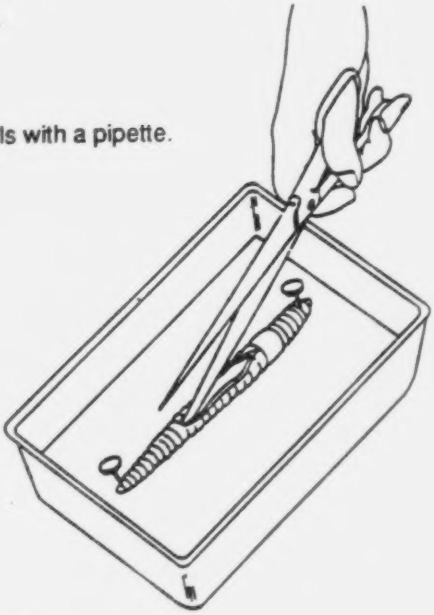
STUDENT HANDOUT

LAB SAFETY



Handling Chemicals

- Wear safety goggles and a laboratory apron when working with chemicals.
- Read all chemical containers labels three times before using the contents: note any warnings on the label.
- When mixing acid and water, always add the acid to the water: never add the water to the acid. Pour the acid slowly down a stirring rod, and stir the solution.
- Never put a chemical into an empty or partially filled container that is labeled for another chemical.
- Use the correct amount of a chemical called for in the direction.
- Do not return a leftover chemical to its container.
- Dispose of chemicals as your teacher directs you.
- Use a suction bulb - not your mouth - to transfer liquid chemicals with a pipette.
- Do not shake chemical containers unless directed to do so.



Dissecting a Biological Specimen

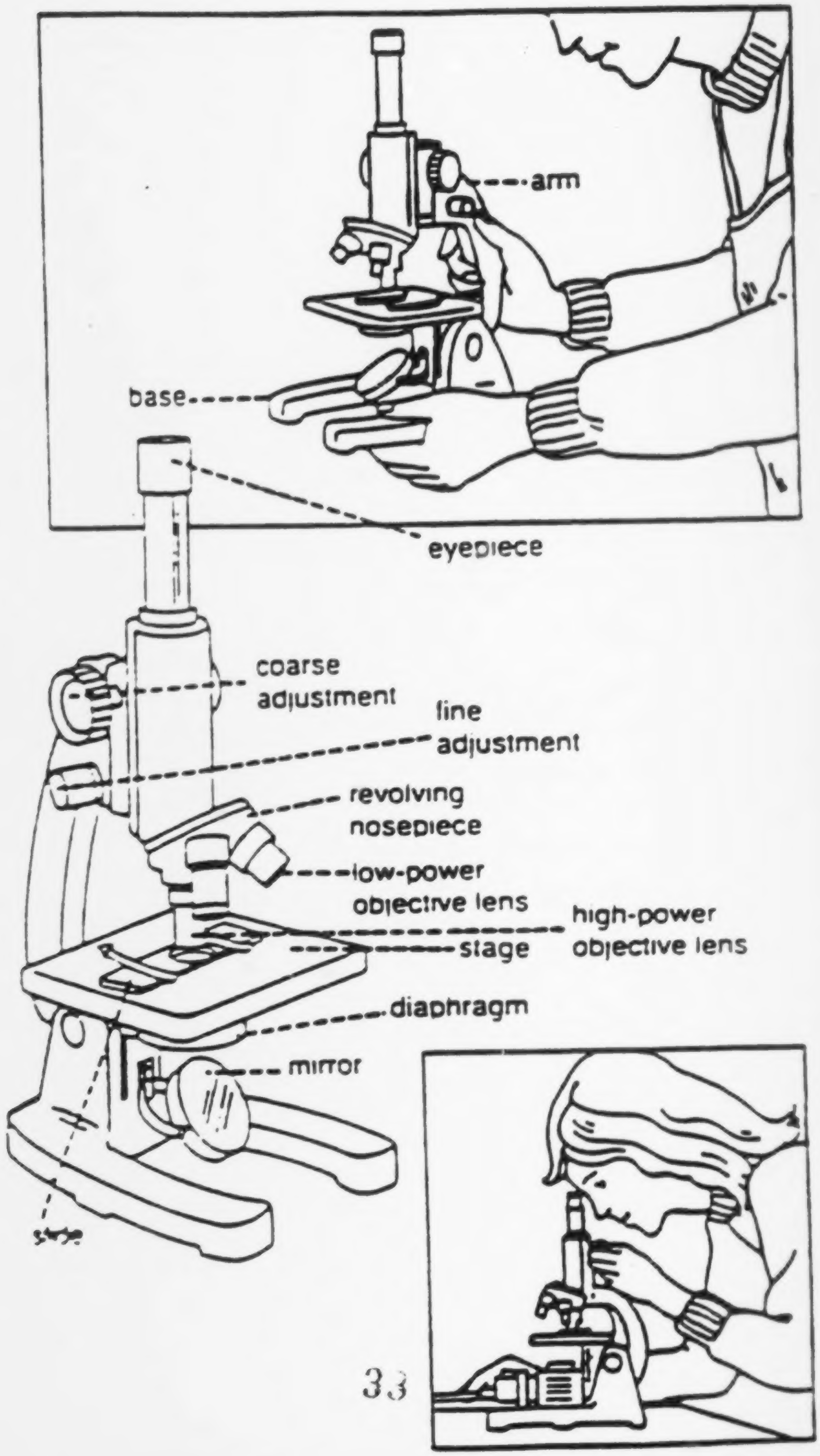
- Wear safety goggles.
- Wear a laboratory apron.
- Before cutting a specimen, always mount it on a solid surface such as a wax dissecting tray.
- Use extreme care when using scissors or a scalpel to cut the specimen: always cut away from your hands and body.
- Use slow and gentle movements when dissecting.
- Do not rub your eyes after handling preserved specimens.
- Always wash your hands after working with preserved specimens.

Detecting odor form a Chemical Source

- Never directly inhale fumes produced by a chemical.
- Gently wave the air above the chemical toward your nose.
- Sniff by taking small intakes of air.
- Never inhale deeply when smelling a chemical.

STUDENT HANDOUT

LAB SAFETY


arm
base
eyepiece
coarse adjustment
fine adjustment
revolving nosepiece
low-power objective lens
high-power objective lens
stage
diaphragm
mirror

PRODUCTS THAT ARE POTENTIALLY DANGEROUS IN THE HOME

WORKSHOP
Paint
Paint thinner
Aerosol sprays
Glues and adhesives
Solvents
Caulking compounds
Rust remover

BATHROOM
All medications, especially aspirin
Laxatives
Tranquilizers
Reducing pills
Sedatives
Vitamins and iron
Liniments and salves
Toilet bowl cleaners (very corrosive)

BEDROOM
Hair sprays and conditioners
Deodorants
Moth balls
Medications
Nail preparations

KITCHEN
Ammonia
Bleach
Disinfectant
Insecticides
Furniture polish and wax
Shoe dye and polish
Lighter fluid
Lye and drain cleaners
Oven cleaners
especially phosphate- free and electric dishwasher types

GARAGE
Lime
Putty
Garden sprays
Insecticides
Pesticides
Liquid solder
Anti-freeze
Petroleum distillates:
gasoline
kerosene
car wax
turpentine

Add other products you may have seen stored at home. Are they stored safely?

STUDENT HANDOUT

Rules for Taking Medicines

1. Take the medicine as directed.
2. Finish the entire prescription.
3. Discard any unused medicines.
4. Never share your medicine with anyone.
5. Keep medicine in a safe place, in original containers.
6. Do not take several medicines at the same time, unless the doctor is aware of ALL of them.
7. Mixing drugs (medicines) and alcohol can be fatal.
8. Never give medicine in the dark.
9. Never give medicine form an unlabeled containers

WHEN IN DOUBT THROW IT OUT !

STUDENT HANDOUT

EMERGENCY!

If Accidental Poisoning Occurs...

1. Keep Calm
2. Call for help
3. Collect Evidence (bottles, pills, containers)

Who ?

Poison Control Center

Police or Emergency

Doctor's phone

Dial "O" for Operator to ask for help

How ?

Give Name

Address

Phone #

Important information

Stay on phone

SCIENCE

OXIDATION - BLOOD ALCOHOL CONTENT

SUBJECT OBJECTIVE

Student will understand the concept of oxidation by using the liver's ability to breakdown alcohol as an example.

PREVENTION OBJECTIVE

Student will understand the physical demands placed on the body by alcohol use.

Materials /Resources

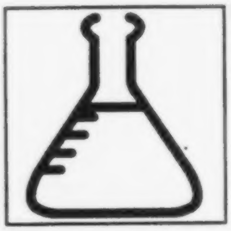
1. Two jars of different sizes
2. Water
3. Food dye
4. One blank transparency
5. Student Handout "Oxidation"
6. Student Transparency "Blood Alcohol Content"
7. Teacher Background Information: "Oxidation", "Blood Alcohol Content"

Procedures/Activities

1. Discuss the concept of oxidation with students before beginning the activity.
2. Demonstrate the lab activity as explained in "Teacher Background Information".
3. Discuss the role of Blood Alcohol Content in oxidation.
4. Allow students to work in cooperative groups of four to complete the questions.

Extension Activities

1. Discuss and include activities relating to plant oxidation.
2. Discuss and show examples of liver cirrhosis.
3. Have student fill out the Healthstyle Self Questionaire and Contract provided on Plate D and E.
4. Include the lesson on Reaction Time found in this packet.



Grade level 7

Teacher Tips:

Critical thinking will facilitate prevention infusion. Suggested questions: What did I learn? What about this activity surprised me? How am I going to be different after this activity?

Tolerance level, mood, medications and nutritional habits also affect behaviors while drinking.

STUDENT HANDOUT

"Oxidation"

☞ Directions: Complete the questions below.

1. What is the definition of oxidation? ________________________________

2. What is the major factor that influences intoxication? ____________________

3. Using the transparency on Blood Alcohol Content (BAC), answer the questions below.

a. How many drinks in one hour would place you at a state of intoxication? ______________

b. How many drinks in one hour would it take a 140 pound person to reach .10 or above? ________

c. Why should a person space their drinks? ________________________________

d. How many drinks can the liver convert in one hour? ________________________

e. Dan weighs 160 pounds. He came to a party at 9:00 and chugged six drinks for one hour.

At 10:00 he had consumed two mixed drinks and four beers. Should he drive home? __________

Why or why not? ____

f. Brenda weighs 120 pounds. She is at the same party as Dan. In two hours she has had four mixed drinks and three glasses of wine. How long will it take her liver to oxidize the alcohol to a state of sobriety?

____

4. When the liver oxidizes alcohol, what two wastes are given off?

____

____

5. With your cooperative group, devise a short (1-2 minute) skit from a situation assigned to you by your teacher. The script should end with a decision that solves the problem. Be ready to role play your script!

APPROXIMATE BLOOD ALCOHOL CONTENT (BAC)

Number of Drinks in one Hour	Body Weight				
	100 (45)	120 (54)	140 (63)	160 (72)	Pounds (Kilogram)
1	.04	.03	.03	.02	
2	.08	.06	.05	.05	
3	.11	.09	.08	.07	
4	.15	.12	.11	.09	
5	.19	.16	.13	.12	
6	.23	.19	.16	.14	
7	.26	.22	.19	.16	
8	.30	.25	.21	.19	
9	.34	.28	.24	.21	
10	.38	.31	.27	.23	

* .10 and above is considered legally drunk in all 50 states

* One drink equals about 1/2 oz. of Alcohol or:

One glass of wine,
One can of beer,
One shot of whiskey

* The liver can only oxidize between 1/2 and 3/4 oz. of alcohol an hour.

TEACHER BACKGROUND INFORMATION

Part I: Oxidation

1. Discuss the concept of oxidation fully with students.

Part II: Blood Alcohol Content

1. Introduce the activity by asking students who would first be affected by alcohol; a heavy or light person.

2. Demonstrate why alcohol affects the lighter person first with the following activities:

a. Place two jars of different sizes on a table. Fill each with water.

b. Ask students to predict which jar will become colored faster when drops of dye are added.

c. Add equals amounts of dye to each jar until students see the effect.

d. Correlate their observation with the use of alcohol in that alcohol affects people differently depending on body weight.

Part III: Blood Alcohol Content

1. Run off a transparency from the "Blood Alcohol Content" chart

2. Display the BAC transparency and discuss the effect of body weight on intoxication and oxidation. See Plates B and G (Science Resource Section), for more information on this subject.

Part IV: Questions

1.Pass out the Student Handbook "Oxidation".

2. Allow students to work in cooperative group of four on these questions.

3. Assign students a situation from Plate H, "What's Your Decision?" (Science Resource Section), when they get to question five.

SCIENCE

FUNGI HALLUCINOGENS

SUBJECT OBJECTIVE

Students will observe, draw and identify parts of a mushroom. Students will compare and contrast structures of a mushroom, morel and a bread mold and identify uses of fungi.

PREVENTION OBJECTIVE

Students will identify, in groups, harmful effects of hallucinogenic formed by fungi.

Materials/Resources

1. Student Handout/Material list "Comparison of a Mushroom to Other Types of Fungi".
2. Transparency "Mushroom Structures".
3. Teacher Background Information: - Reader's Digest "Transplant Emergency!" July 1989, "Just the Facts ... LSD" Plate M (Science Resource Section).

Procedure /Activities

1. Group read/discuss background.
2. Pair complete handout drawings/questions.

Extension Activities

Read Reader's Digest, "Transplant Emergency!," which related story of eating poisonous mushroom and the results. Discussion should include, "Is it worth high risk to your body to try questionable things?"

Grade level
7

Teacher Tips:

Critical thinking will facilitate prevention infusion. Suggested questions: What did I learn? What was I thinking about during the activity? What will I start or stop doing after this experience?

Bread Molds:

a. Use bread with no (or few) preservative to culture mold 3 - 5 days ahead of use.
b. Tape petri dish for observation.

Paper shortage? Print entire handout or just background as a class set. Also, by grouping, one paper per group will be used to record answers for group grade (cooperative learning).

COMPARISON OF A MUSHROOM TO OTHER TYPES OF FUNGI

☞ BACKGROUND

A fungi is an organism that lacks chlorophyll, produces spores and absorbs food from living or once-living things. Fungi are divided into three main groups:

1. Club Fungi -
Mushrooms are common throughout the world. Some are grown for commercial use (study in class today) and also grow in the wild. One of the wild varieties is the psilocybe mushroom, which produces psilocybin, which is a hallucinogenic drug (one which alters moods to extremes by interfering with normal brain signal transmission).

2. Sac fungi -
A morel is an example we will examine today. Another sac fungus is yeast which is one of the most useful fungi. Yeast produces ergosterol which helps form vitamins D, B, and C. Through the process of fermentation, yeast produces alcohol (e.g. turning fruit juice into wine and carbon dioxide used to cause bread to rise).

Ringworm and athlete's foot are skin diseases caused by sac fungi. The greenish mold found on the skin of old oranges is probably the sac fungus which produces the antibiotic penicillin, a drug used to treat bacterial diseases. Other similar sac fungi are used in making cheeses.

3. Threadlike fungi -
Bread mold is an example available to observe. Aspergillus niger produces citric acid, which is used in soft drinks for a tangy taste. Ergot is found on rye bread. It makes lysergic acid which is used to produce LSD, a hallucinogenic drug.

☞ OBJECTIVES:

After completing this investigation, you will be able to

✔ 1. Identify the parts of a mushroom
✔ 2. Compare and contrast structures of a mushroom, a morel, and a bread mold
✔ 3. Identify uses of fungi

☞ MATERIALS:

✔ Fresh mushrooms with nyphae intact
✔ Hand lens
✔ Microscope
✔ Culture of bread mold in petri dish
✔ Transparency of labeled mushroom structures
✔ Prepared slide of mushroom gill
✔ Lap apron
✔ Safety goggles
✔ Preserved morel

Transplant Emergency

by Jack Fincher

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Not for Duplication

Saturday, October 22, 1988, began as a glorious day in the Pacific Northwest - cloudless skies, unseasonably warm weather, an autumn blaze of falling leaves, cedar-scented air. John Duncan, an imports appraiser for the U.S. Customs Service, and his Korean-born wife, Teresa, had brought their friend Isun Pak to the banks of the Columbia River outside Portland to gather chestnuts.

Suddenly Isun cried out in Korean as she held up something greenish and stalky. "Look, mushrooms!" The shadowy grass hid a profusion of them.

"Is she sure they're good?" John asked. His mother had eaten a bad mushroom when he was a boy. He remembered how sick she was.

The mushrooms were long and pale with a fleshy cap and collared stem. They looked like the kind Isun had eaten in Korea.

That evening, Teresa and Isun chatted happily while they washed, then sliced, a sackful of the mushrooms into a sizzling bath of sesame-seed oil and soy sauce together with onions, carrots, and zucchini. After another Korean friend phones, Teresa set aside a single mushroom. "She wants to see it," Teresa explained to Isun. Then she joked: "Don't worry. If it is poisonous, we'll all go together."

Despite the soy sauce, the mushrooms tasted bland as dust. Isun took the rest home for her son Andy and his fiancee, Glenda Sabolyk.

Sunday

In the middle of the night, John awoke to a vicious onslaught of vomiting and diarrhea. Staggering into the living room, he found Teresa prostrate with stomach pangs. Like John, she suffered a siege of vomiting and diarrhea. They looked at each other. The mushrooms.

Should they wake their teen-age daughter, Maureen, and have her drive them to the emergency room? You don't die from bad mushrooms, John told himself, you just get sick. They decided to ride it out at home.

Biologist Preston Alexander was chopping wood when urgent word came from Tuality Community College Hospital near Portland. Isun Pak, her son Andy and his fiancee had just been admitted with savage gastric distress. Glenda had brought the remains of their previous night's meal with her. Would he take a look at some mushrooms?

An amateur mycologist, or fungus expert, Alexander knew the mysteries of mushroom pharmacology. As he drove to the hospital, he was bothered less by the symptoms than by the extraordinary eight-hour delay in their onset. That unusual pattern was typical of the last toxin he wanted to think about. Mrs. Pak had said something about seeing mushrooms in Korea like the ones she picked the day before. One variety, the Oriental padi straw mushroom, answered her description, all right. Only two varieties did. It was the other one that haunted him.

At the hospital Alexander studied the mushroom leftovers. They were fried almost beyond recognition. Scraping off minute spores, he exposed them to an iodine solution. Under the microscope the small, round spores gradually turned bluish. That was bad. It indicated the presence of a complex sugar that can be found in poisonous mushrooms. He then mashed a piece of cap onto newspaper and applied a drop of hydrochloric acid. A sky-blue halo appeared around it. That was worse. It suggested a particularly dangerous toxin. Neither test was conclusive, though. What I wouldn't give for a raw specimen! he thought.

Not long after Alexander finished testing, Dr. Robert Fields, the attending physician called. "We finally got through to the Duncans," he reported. "The daughter says they're too sick to come to the phone. But there's an uncooked mushroom in the kitchen."

Jumping into the cars, the two men raced across town to the Duncan duplex. They found John in bed, racked with cramps and dehydration. Teresa huddled in limp agony on the bathroom floor.

Daughter Maureen showed Fields and Alexander the remaining mushroom. One look was all Alexander needed. It was Amanita phalloids, the death cup - one of thee world's most lethal mushrooms. Helping John and Teresa into the car, Fields roared off to Portland's Bess Kaiser Hospital.

Monday

Dr. Mohamud Daya of the Oregon Poison Center at Oregon Health Science University Hospital had been on the phone for two hours with a Swiss expert on amanita poisoning. Unlike other mushroom toxins, he knew, the death cup inhibits the liver's ability to make proteins that are vital to the body's health. If absorption of the toxins is not stopped in time, cell damage is irreversible. Once symptoms begin, it is usually too late.

After talking with the Swiss expert, the doctors decided to treat their patients with oral milkweed extract, high dose intravenous penicillin and large amounts of fluids to promote urinary excretion of the toxins. They believed that the milkweed and penicillin would prevent toxins from entering the liver cells, thus minimizing liver damage. Nevertheless, from liver-function tests the worst was evident: the five victims had already suffered acute damage. Now the life-or-death. The next 24 hours would tell.

Tuesday

Preston Alexander, having determined the amount each victim had eaten, phoned Dr. C. Wright Pinson, director of Oregon Health Sciences University's new liver-transplant program. "I think you're about to get five patients who need new livers right away."

Pinson, a stocky steady-eyed young surgeon, had been recruited that summer from Harvard to start the Oregon program, the first in the Pacific Northwest. His team had transplanted their first liver barely six days before. Pinson had hoped to bring the program along carefully, with 15 transplants in the first year. Now they faced a third of that many in one week.

As the only fully trained surgeon of his kind in the region, Pinson couldn't possible do all five transplants.

On a scale of one to ten, if a kidney transplant ranks two, or relatively uncomplicated, the liver ranks ten, the most difficult.

The liver is the chemical cross roads of life. Every metabolic pathways in the body passes through it - over connections that frequently differ from patient to patient. Often, the surgeon has to sort out the blood flow and then neatly meld two and more critical routes into one. Pinson was also concerned about the shortage of donor organs. At least 11 percent of those awaiting a liver in 1988 died one became available.

Pinson decided his team could take Teresa Duncan, the most critically ill, and her husband, whose condition was not worsening as fast. With luck, Teresa could be out of surgery by the time John had to go in. Perhaps Andy and Glenda could be sent to San Francisco, which had the nearest alternative facility. That left Isun Pak. Given a window of opportunity between the Duncans, Pinson could manage her transplant as well. Or so he hoped.

One thing was puzzling Mohamud Daya. As expected, the patients had begun exhibiting two more symptoms of sudden liver failure: jaundice and elevated enzyme counts. Yet none of the five showed any of the grogginess that ordinarily precedes coma and death.

The liver, Daya knew, is a miracle of regeneration. In some cases, livers 90-percent destroyed have spontaneously repaired themselves and returned to normal. How much damage in death-cup poisoning was too much? Were they on downward spiral or were their conditions stabilizing?

Wednesday

Perhaps their luck was changing. The university of California Medical Center in San Francisco agreed to accept Andy and Glenda. And only a few beds down from Teresa Duncan, a male gunshot victim with her blood type had been declared brain-dead. The quest for donor permission had begun.

Meanwhile, Daya had talked with a West German physician who warned, on the basis of having treated 180 amanita poisoning, that four of the five Oregon patients were likely to die. Time was running out.

Ironically, Pinson had to tell Teresa that her liver function was almost gone at a time when she was feeling better. "You've got a 95-percent chance of dying as being alive in a year with it."

Teresa looked hard at him. "I am a fighter, doctor. Don't worry."

Even as they spoke, however, the situation was turning sour. Tests on the gunshot victim's liver showed that it probably wasn't healthy enough for transplant.

At midnight, Pinson took the gunshot victim's body to surgery, hoping against hope the donated liver might look better than it tested. It did not.

When Pinson came out of surgery, he received a phone all from Dr. Kent Benner, a liver specialist at the hospital. "Mrs. Pak has gotten worse, and I think she will need transplant soon" - meaning she would probably have to be evaluated and listed to receive an organ right away.

Thursday

A donor with a blood type compatible with Isun's had become available in Canada. That meant a four-hour round-trip flight for Pinson and transplant coordinator Les Wheeler, plus three hours of surgery to remove the donor liver - before they were even ready to transplant.

Fortunately, John Duncan's condition had stabilized. But Teresa was beginning to show perilous swelling of the brain from the poison. Death or brain damage could result if medication failed to reduce the pressure. Still there was no choice. She would have to wait until somewhere in North America a liver became available.

Friday

Pinson slumped over coffee at his kitchen. He and Wheeler had just dropped off the Canadian's liver they spent all night getting for Isun Pak. According to the morning paper, Glenda Sabolyk's transplant in San Francisco had been an unqualified success. Pinson wished he felt as confident about Isun. The oldest of the patients - in her early 50's - the frail women had a history of abdominal surgery. That meant probably adhesion and excessive bleeding. Her chances of getting off the operating table were 60 percent at best.

Pinson had slept less than eight hours in the past three days. But with surgery two hours away he dared not nap.

Early in Isun's operation, Pinson could see that the surgery would be as difficult as he had imagined. He faced a network of vessels so fragile that they threatened to fall apart if he looked at them wrong. Open adhesions were bleeding everywhere.

Twelve exhausting hours later, Pinson slipped off his surgical gloves. Isun was in stable condition, and her new liver worked fine.

Still, Pinson could hardly manage a smile when told outside that operating room that a donor had been found for Teresa Duncan. Pinson was prepared to go there when he heard that a qualified transplant surgeon on the scene had offered to remove the liver.

"Let him, then," Pinson said. "And send Wheeler to bring the liver back." If Pinson was going to operate again in the morning on Teresa, he needed a good night's sleep.

Saturday

A half-inch hole was drilled in the top of Teresa's skull, then a stainless steel bolt inserted. At its tip was an electronic sensor that told Pinson the fluid pressure in her brain was high but tolerable. That was the morning's third bit of good news. Isun's son Andy had had a successful transplant in San Francisco, and John Duncan was not going to need a new liver after all. Pinson felt as if he were coming up for air after several days of under water.

In the operating room, Pinson cut loose Teresa's dying liver, now shriveled to half its normal size, and lifted it out. Gently he eased the implants into place. With hundreds of sure, swift stitches no bigger than tiny razor nicks, he and his assistant sutured the five major connections. Finished six hours later, they watched as blood oozed from dozens of minute openings. This was the moment of truth in transplant surgery. One out of ten to 20 times, the liver simply fails to work.

But now there was no doubt: Teresa's blood was beginning to clot. The relief around the operating table was almost palpable. A gabble of light talk broke out. "All right," Pinson said through his surgical mask, "Let's keep it quiet. We're not out of the woods yet." But in his heart he hoped they were.

Teresa and John Duncan, Isun Pak, her son Andy and Glenda Sabolyk are home from the hospital and recovering. They have resumed normal activities, and none have suffered any permanent damage. All but John will have to take medication for the rest of their lives. Yet they undoubtedly would have died without a medical miracle - the liver transplant.

"Those seven days last October," says Pinson, "show how far we've come in transplantation in general, and how well the new Oregon team can respond in particular. I'm very proud of them."

INVERTEBRATE ANIMAL - STIMULANTS AND DEPRESSANTS

SUBJECT OBJECTIVE

Student will observe Daphnia under the microscope and describe changes in heartbeat when stimulant or depressant is added to Daphnia.

PREVENTION OBJECTIVE

Student will relate in group, changes of heartbeat rate in Daphnia to changes in humans using stimulant or depressant.

Materials/Resources

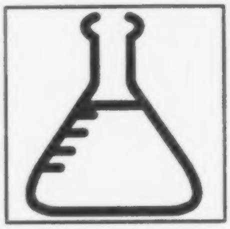
1. Student Handout/Material list "Study of Daphnia and Heartbeat Reaction." Supplementary materials for teacher Plate J, K and L (Science Resource Section).

Procedure/Activities

1. Student pairs complete Student Handout activities/questions.

Extension Activities

1. Perform the same experiment using an aspirin solution and a cola drink solution, then classify them as stimulant or depressant.
2. Conduct a similar experiment on a vertebrate, goldfish.
3. * First, check your school system guidelines regarding experimentation with vertebrates - to observe blood vessel constriction due to nicotine, Plate J,K,L.



Grade level
7

Teacher Tips:

Critical thinking will facilitate prevention infusion. Suggested questions: What did I learn? What about the experiment surprised me? What did I learn about myself? What will I start or stop doing after this experience?

Daphnia are great to observe living internal organs. When ordering Daphnia specify delivery date.

IMPORTANT: follow suppliers directions for transferring Daphnia to other containers.

TIME SAVER: Assign to alternate student pairs either caffeine or alcohol solutions, then neighboring pairs can exchange results to avoid extra trips to sink and Daphnia culture.

STUDY OF DAPHNIA AND HEARTBEAT REACTION

Background

Daphnia are macroscopic invertibrates, in phylum Arthropoda, class Crustacea. In this investigation, you will test effects of alcohol and caffeine on the heartbeat of a Daphnia. Depressants, such as alcohol, slow down body functions. Stimulants, such as caffeine, speed up body functions. Depressants and stimulants are two types of drugs. Drugs are chemicals that cause changes in the body.

Objectives

After completing this investigation, you will be able to:

1. Identify Daphnia and observe its heartbeat.
2. Describe changes in the heartbeat of a Daphnia when a stimulant or a depressant is administrated.
3. Relate changes in a Daphnia to changes in humans when drugs are ingested.

Materials

culture of Daphnia
dropper
depression slide
microscope
water, desk container (spring or distilled) and sink/faucet
clock or watch with second hand
caffeine solution
alcohol solution

Procedure

A. Use the dropper to obtain a Daphnia for the culture. Place the Daphnia on a depression slide. Add tap water until the Daphnia is submerged. Do not place slipcover over the Daphnia.

B. Look at the Daphnia under low power of the microscope. Locate the heart of the Daphnia. You should see its heart beating quickly.

C. Working with a partner, determine the Daphnia's heartbeat rate. One partner should signal the beginning and end of 15 seconds on a clock or watch while the other partner counts the number of heartbeats.. Multiply by 4 to find the rate per minute. Repeat this procedure two more times. Alternate jobs with your partner throughout the investigation. Record the normal heartbeat rates in TABLE A-#1. Add the three heartbeat rates and divide the total by 3 to find the average.

1. What is the average heartbeat rate?
(Record the average heartbeat rate in TABLE A-#1)

D. Rinse out the dropper, then add a drop of caffeine solution to the water in the slide. Count the Daphnia's heartbeat rate, following the procedures in step C. Record the heartbeat rates in TABLE A- Caffeine. Calculate and record the average heartbeat rate.

2. Did you notice a change in the heartbeat rate after the caffeine solution was added? Explain your answer.

E. Rinse out the dropper and the depression slide in the sink, then obtain a fresh DAPHNIA. Place it on the depression slide. Add water until the Daphnia is submerged. Count the Daphnia's normal heartbeat following the procedures in step C. Record the heartbeat rates in TABLE A-#2. Then calculate and record the average heartbeat rate.

F. Rinse out the dropper, then add a drop of alcohol solution to the water solution on the slide. Count the Daphnia's heartbeats and calculate average. Record rates in TABLE A- Alcohol.

3. What change, if any, did you notice in the heartbeat rate after the alcohol solution was added?

TABLE A

HEARTBEAT RATE OF DAPHNIA

	Normal #1	with Caffeine	Normal #2	with Alcohol
1.				
2.				
3.				
AVERAGE				

CONCLUSIONS: Work with lab group

1. Contrast (tell how they differ) the effect of caffeine and alcohol on the heart rate of Daphnia?

2. Based on your observations, what would you expect to happen in heart rate if a human ingested (took into body) a stimulant (caffeine) ?

3. What would you expect as a change in heart rate of a human if a human ingested a depressant (alcohol) ?

Group Discussion

1. What effect might rapid heartbeat rate have on a human over along period of time?

Classify these substances

	Stimulant	Depressant
Coffee		
Cola		
Tranquilizer		
Tea		
Adrenaline		
Nicotine		
Cocaine		
Amphetamine		
Barbituates		
Sleeping pills		

SCIENCE

CIRCULATORY SYSTEM - PULSE RATE AND SMOKING

SUBJECT OBJECTIVE

Students will demonstrate positive effects of exercise on the heart through the measurement of pulse rate.

PREVENTION OBJECTIVE

Students will understand the negative influence of smoking on the heart.

Materials/Resources

1. Clock or watch with a second hand
2. School staff who smokes
3. Rules for graphing
4. Two blank transparencies
5. Student Handout "Pulse Rate and Smoking"
6. Student transparency "Pulse Rate Questions"
7. Teacher Background Information:
    - Part I: finding and recording pulse rate
    - Part II: Homework Assignment

Procedures/Activities

1. Have students take and record their pulse while doing a variety of activities from "Teacher Background Information".
2. Have students complete the smoking activities at home using a family member of friend who smokes as a resources.
3. Discuss results with students following each activity.

Extension Activities

1. Introduce a unit of bloodpressure, repeating the same activities used in this lesson.
2. Ask a resource person from the American Heart Association to give a class presentation.
3. Have students fill out the "Healthstyle Self Quiz and Contract", Plate D and E. (Science Resource Section).

Grade
level
7

Teacher Tips:

Critical thinking will facilitate prevention infusion. Suggested questions:
What did I learn? What about this activity surprised me? What was I thinking during the activity?

1. This activity involves a home work assignment.
2. If students can't find wrist pulse, let them use their neck pulse.
3. Do not allow students to use their thumb to find a pulse, as the thumb has its own tiny pulse.
4. Provide a school staff volunteer to take his or her own pulse, smoke a cigarette, and then enter the classroom to be tested by those students who cannot find a smoker on their own.

Student Transparency

"Pulse Rate Questions"

☞ **Directions:**

Copy and answer the following questions, using your pulse rate activities as references.

1. What effect does smoking have on the following areas of the circulatory system?

a. Heart ____________________
b. Blood vessels ____________________
c. Blood flow ____________________

2. What is the difference between increasing the pulse by exercising and by smoking?

3. At what minute was your resource person's pulse rate the highest after smoking the cigarette?

4. At what minute was your pulse rate the highest after exercising?

5. What is the difference in the effects on respiration from smoking and from exercising?

6. How may an increased pulse rate affect a smoker over a long period of time?

7. What do you think smokers enjoy the least and most about their habit?

8. Should the U.S. Government ban tobacco? Explain your answer.

STUDENT HANDOUT

"Pulse Rate and Smoking"

☞ Direction:

Using a family member or friend who smokes as a resource person, complete the following activities.

Part I: Pulse Rate: Find the average pulse rate of your resource person.
Record the data on Chart I.

Chart I
My Resource Person's Pulse Rate

Part II: Pulse Data and Smoking: Ask your resource person to smoke a cigarette. Begin taking his/her pulse after the third or fourth puff. Continue for ten minutes. Record the data on Chart II.

Chart II
My Resource Person's Pulse Rate with Smoking

Part III: Graphing: Using the data from Chart II, graph your results.

CHART III
My Resource Person's Pulse rate with Smoking

TEACHER BACKGROUND INFORMATION

Part I: Finding and Recording Pulse Rate

1. Run off the transparency "Pulse Rate and Exercise" and have students copy the title, charts, and graph from the overhead.

2. Help students correctly locate their pulse, either on the wrist or neck.

3. Using a watch with a second hand or a clock, time students as a class for a 15 second pulse rate. Show students how to calculate their pulse rate by multiplying their results by four. (15 seconds X 4 = 1 minute). Repeat this two more times, making sure students are charting their results on "Chart I" . Have students find the average pulse rate.

4. Engage the class in one or more types of vigorous activities for five minutes. Examples may include one minute of walking in place, one minute of jumping jacks, one minute of arm curls, one minute of running in place, and one minute cool down activity such as again walking in place.

5. Have students sit and record their pulse rates for the next ten minutes. Again use the 15 second count. Check to see that data is being properly recorded.

6. Have students plot their results on the graph.

Part II: Homework Assignment - "Pulse Rate and Smoking" Handout

1. Pass out the student handout "Pulse Rate and Smoking". Explain to the students with the directions.

2. You may want to give students two or three days to complete the homework activity to give time for as many students as possible to ask a smoker.

Be sensitive to those student who cannot locate a smoker. They should not be penalized for this. As suggested in "Teacher Tips," provide a volunteer staff member as a resource for these people and add as a comparison for students who did locate smokers.

Part III: "Pulse Rate Questions" Transparency

1. Following completion of both "Pulse Rate and Exercise" and "Pulse Rate and Smoking" activities, place the "Pulse Rate Questions" transparency on the overhead for the students to complete.

SCIENCE PLATES

Plate A - THE BRAIN - THE CONTROL CENTER OF THE BODY

Plate B - THE EFFECTS OF ALCOHOL

Plate C - DRINKING AND DRIVING

Plate D - HEALTHSTYLE - A SELF TEST

Plate E - HEALTHSTYLE CONTRACT

Plate F - SMOKING MACHINE ILLUSTRATION

Plate G - PATHWAYS OF ALCOHOL

Plate H - HEALTH DECISIONS

Plate I - NATIONAL DRUG SURVEY

Plate J - INVESTIGATION OF NICOTINE'S EFFECT ON LUNG ORGANISM

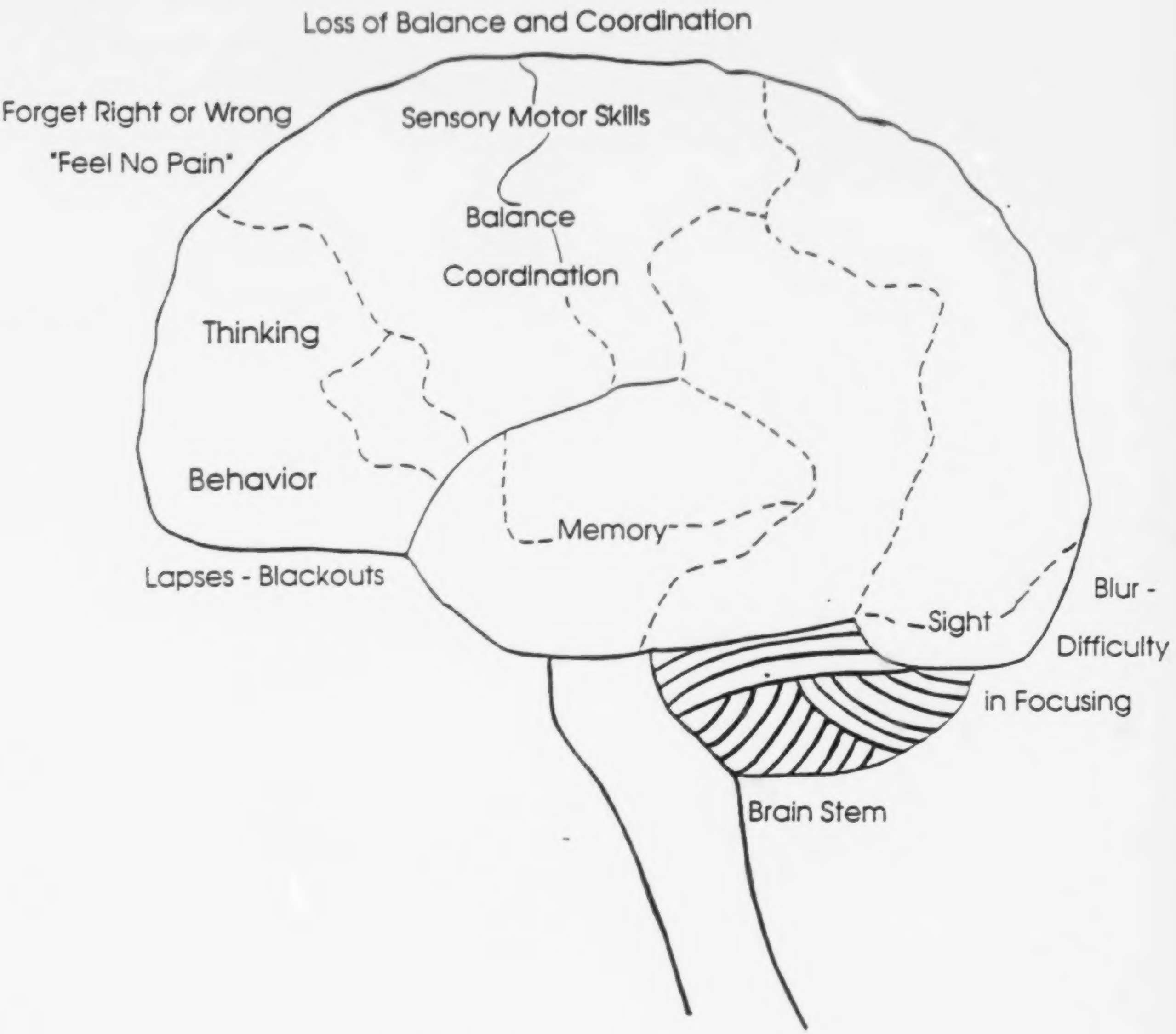
Plate K - SIMULATED BLOOD VESSEL CONSTRICTION ILLUSTRATION

Plate L - BLOOD PRESSURE ANALOGY ILLUSTRATION

Plate M - JUST THE FACTS . . . LSD

Plate N - JUST THE FACTS . . . DUI

Plate A - THE BRAIN - THE CONTROL CENTER OF THE BODY


Loss of Balance and Coordination
Forget Right or Wrong
"Feel No Pain"
Sensory Motor Skills
Balance
Coordination
Thinking
Behavior
Memory
Lapses - Blackouts
Sight
Blur -
Difficulty
in Focusing
Brain Stem

- - - = Alcohol affected

The brain is the organ most sensitive to alcohol.

Plate B

THE EFFECTS OF ALCOHOL

HEALTH COMPONENT	POSSIBLE EFFECTS
Mental Health	Interferes with learning and school performance Intensifies moods Interferes with problem-solving skills Increases stress Causes organic mental disorder Produces psychological dependence Causes various brain disorders
Family and Social Health	Increases number of family arguments Gives a false sense of effective communications Increases violent interactions Causes FAS
Growth and Development	Destroys brain cells Impairs physical skills Affects and dulls all senses Lowers body temperature Increases heart rate and blood pressure
Nutrition	Interferes with appetite and vitamin absorption Causes niacin and thiamine deficiency
Exercise and Fitness	Interferes with coordination and muscle movement Decreases physical performance
Drugs	Produces serious side effects when used with other drugs Depresses brain and respiration center and may cause coma or death when used with narcotics Causes dizziness or clumsiness when used with tranquilizers
Diseases and Disorders	Causes cirrhosis of the liver Increases the likelihood of heart disease Increases the likelihood of cancer of the mouth, esophagus, larynax and pharynx when combined with smoking cigarettes Causes kidneys to overwork
Consumer and Personal Health	Has an offensive odor to others Increases perspiration Is an expensive habit Causes feelings of nausea, tiredness, thirst and headache
Safety and First Aid	Increases drowning, falls,fires Is responsible for most auto accidents and traffic deaths Is involved in most crimes and murders
Community and Environment Health	Adds costs in industry, law enforcement, health and family life Adds to environmental pollution

THE BRAIN

Brain cells altered and may die. Memory formulation is blocked and the senses are dulled in the long term irreversible damage occurs.

CEREBELLUM

Physical coordination is impaired.

HEART

Deterioration of the heart muscle can occur.

REPRODUCTION

In men hormone levels change, causing lower sex drive and enlarged breasts. Women's menstrual cycles become irregular, and the ovaries malfunction. Pregnant women face the risk of bearing children with birth defects.

STOMACH AND INTESTINES

Alcohol can trigger bleeding and has been linked to cancer.

THE LIVER

The liver suffers more than any other organ. It filters most of the alcohol out of the blood stream and breaks it down. Because of its high caloric content, alcohol displaces key nutrients, sometimes causing malnutrition.

Excess calories are stored in the liver as fat. This is one of the earliest signs of alcohol liver disease.

Eventually the liver cells die, resulting in cirrhosis, a degeneration of the organ.

THE IMMUNE SYSTEM

Infection-fighting cells are prevented from functioning properly and the risk of viral bacterial diseases is increased.

DRINKING AND DRIVING

Plate C

Alcohol is a commonly used drug found in beer, wine, whiskey and other alcoholic beverages. Often, alcohol is consumed during social gatherings that take place away from home. Many people drive home after consuming alcohol at a social gathering.

The chart below shows the effects of drinking different amounts of alcohol over a period is time on a person weighing 67.5 kg. One drink on the chart is equivalent to 45 ml whiskey, 90 ml wine, or 360 ml beer. Note that for persons weighing less than 67.5 kg., the effect of each drink is greater. For persons weighing more than 67.5 kg, the effect of each drink is smaller. Also, each individual who drinks may react differently to the same amount of alcohol at different times. Fatigue, lack of food, or moods may increase the effect of alcohol.

Use the chart and the information in text section 18:5 to answer the questions about drinking and driving. Unless otherwise stated, all people in the questions weigh 67.5 kg.

DRINKING AND DRIVING

IF YOU DRINK	EFFECTS	ALCOHOL CONCENTRATION IN THE BLOOD	AFTER FINISHING LAST DRINK, TO BE SAFE, BEFORE DRIVING WAIT
1 drink within 15 minutes	slight change in feeling; mildly relaxed	0.03%	1/2 hour
2 drink within 1/2 hour	feeling of warmth and relaxation; slight loss of behavior control: slight loss of fine motor skills; less concerned with minor irritations and restraints	0.06%	1 hour
3 drinks within 1 hour	floating sensation; exaggerated emotion and behavior; talkative unable to make good judgements	0.09%	2 hours
4 drinks within 2 hours	fine motor skills greatly impaired; clumsiness apparent; slight to moderate unsteadiness in standing or walking; blurred vision	0.12%	3 hours
5 drinks within 3 hours	both fine and gross motor skills impairs; behavior becomes irrational or dangerous; vomiting headache, and/or queasiness may results after initial effects of alcohol wears off	0.15%	5 hours

'ate D ?

Healthstyle - A Self Test ?

All of us want good health. But many of us do not know how to be as healthy as possible. Health experts now describe lifestyle as one of the most important factors affecting health. In fact, it is estimated that as many as seven of the ten leading causes of death could be reduced through common sense changes in lifestyle. That's what this brief test, developed by the Public Health Service, is all about. Its' purpose is simply to tell you how well you are doing to stay healthy. The behaviors covered in the test are recommended for most Americans. Some of them may not apply to persons with certain chronic diseases or handicaps, or to pregnant women. Such persons may required special instructions from their physicians.

Cigarette Smoking

If your never smoke, enter a score of 10 for this section and go to the next section on Alcohol and Drugs.

1. I avoid smoking cigarette	2	1	0
2. I smoke only low tar and nicotine cigarettes or I smoke a pipe or cigars .	2	1	0

Smoking Score: ______

Alcohol and Drugs

1. I avoid drinking alcoholic beverages or I drink no more than 1 or 2 drinks a day.	4	1	0
2. I avoid using alcohol or other drugs (especially illegal drugs) as a way of handling stressful situations other problems in my life.	2	1	0
3. I am careful not to drink alcohol when taking certain medicines (for example medicines for sleeping, pain, cold and allergies) or when pregnant.	2	1	0
4. I read and follow the label directions when using prescribed and over-the-counter drugs.	2	1	0

Alcohol and Drugs Score: ______

Eating habits

1. I eat a variety of food each day, such as fruit and vegetables whole grain breads and cereal, lean meats, dairy products, dry peas and beans, and nuts and seeds.	4	1	0
2. I limit the amount of fat, saturated fat and cholesterol I eat (including fat on meats, eggs, butter, cream, shortening, and organ meat such as liver).	2	1	0
3. I limit the amount the of salt by cooking with only small amounts, not adding salt at the table and avoid salty snacks.	2	1	0
4. I avoid eating too much sugar (especially frequent snacks of sticky candy or soft drinks).	2	1	0

Eating Habit Score: ______

Exercise/Fitness

1. I maintain a desired weight, avoiding overweight and underweight.	3	1	0
2. I do vigorous exercise for 15-30 minutes at least 3 times a week (example include running, swimming, brisk walking).	2	1	0
3. I do excercise that enhance my muscle tone for 15-30 minutes at least 3 times a week (example include yoga and calisthenics).	2	1	0
4. I use part of my leisure time participating in individual, family, or team activities that increase my level of fitness (such as gardening, bowling, golf and baseball).	2	1	0

Exercise/Fitness Score: ______

Stress Control

1. I have a job or other work that I enjoy.	2	1	0
2. I find it easy to relax and express my feelings freely.	2	1	0
3. I recognize early, and prepare for events or situations likely to be stressful for me.	2	1	0
4. I have close friends, relatives or others whom I can talk to about personal matters and call on for help when needed.	2	1	0
5. I participate in group activities (such as church and community organizations) or hobbies that I enjoy.	2	1	0

Stress Control Score: ______

Safety

1. I wear a seat belt while riding in a car.	2	1	0
2. I avoid driving while under the influence of alcohol and other drugs.	2	1	0
3. I obey traffic rules and the speed limit when driving.	2	1	0
4. I am careful when using potentially harmful products or substances (such as household cleaners, poisons, and electrical devices).	2	1	0
5. I avoid smoking in bed.	2	1	0

Safety Score: ______

Plate E

HEALTHSTYLE CONTRACT

If your Healthstyle score could be improved, ask yourself some serious questions, answering them as honestly as possible. What areas can you improve? In what are you willing to work?

Complete the contract below, sign it and date it. You don't have to show the contract to anyone. Sometimes, however, friends can help us to achieve goals. So you may want to share this with a supportive friend or teacher.

CONTRACT

I, ______________________________

being of sound mind and body (but willing to improve both!), do promise to try and increase my Healthstyle Score in the following categories:

____

____

____

I understand that in order to improve these categories I will have to give my best efforts. Some of these I can do to improve include ending some bad habits such as:

____

____

____

and replace them with good habits such as:

____

____

____

I have resource people who can encourage me when I am struggling. They include:

____

____

____

and I promise to call them when I need support. I also promise not to become easily frustrated, and to remember to be patient with myself.

Signed ______________________________

Dated ______________________________

Witness ______________________________
(optional)

What Your Score Means To You

Score 9 or 10
Excellent ! Your answers show that you are aware of the importance of this areas to your health. More important, you are putting your knowledge to work for you by practicing good health habits. As long as you continue to do so, this area should not pose a serious health risk. It's likely that you are setting an example for your family and friends to follow. Since you got a very high score on this part of the test, you way want to consider other areas where your score indicates room for improvement.

Score 6 to 8
Your health practices in this area are good, but there is room for improvement. Look again at the items you answered "Sometimes" or "Almost Never". What changes can you make to improve your score ? Even a small change can often achieve better health.

Score 3 to 5
Your health risks are showing! Would you like more information about the risks you are facing and about why it is important for you to change these behaviors. Perhaps you need help in deciding how to successfully make changes you desire. In either case, help is available.

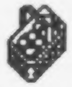
Score 0 to 2
Obviously, you are concerned enough about your health to take the test, but your answers show you may be taking serious and unnecessary risks with your health. Perhaps you are not aware of the risks and what to do about them. You can easily get the information and help you need to improve, if you wish. The next step is up to you.

You can start right now !

In the test you just completed were numerous suggestions to help you reduce your risk of disease and premature death. Here are some of the most significant:

Avoid cigarettes. Cigarette smoking is the single most important preventable cause of illness and early death. It is especially risky for pregnant women and their inborn babies. Persons who stop smoking reduce their risk of getting heart disease and cancer. So if you're a cigarette smoker, think twice about lighting that next cigarette. If you choose to continue smoking, try decreasing the number of cigarettes you smoke and switching to a low tar and nicotine brand.

Follow sensible drinking habits. Alcohol produces changes in mood and behavior. Most people who drink are able to control their intake of alcohol and to avoid undesirable, and often harmful, effects. Heavy, regular use of alcohol can lead to cirrhosis of the liver, a leading cause of death. Also, statistics clearly show that mixing drinking and driving is often the cause of fatal or crippling accidents. So, if you drink, do it wisely and in moderation. **Use care in taking drugs.** Today's greater use of drugs - both legal and illegal - is one of our most serious health risks. Even some drugs prescribed by your doctor can be dangerous if taken when drinking alcohol or before driving. Excessive or continued use of tranquilizers (or pep pills) can cause physical and mental problems. using or experimenting with illicit drugs such as marijuana, heroin, cocaine, and PCP may lead to a number of damaging effects or even death.



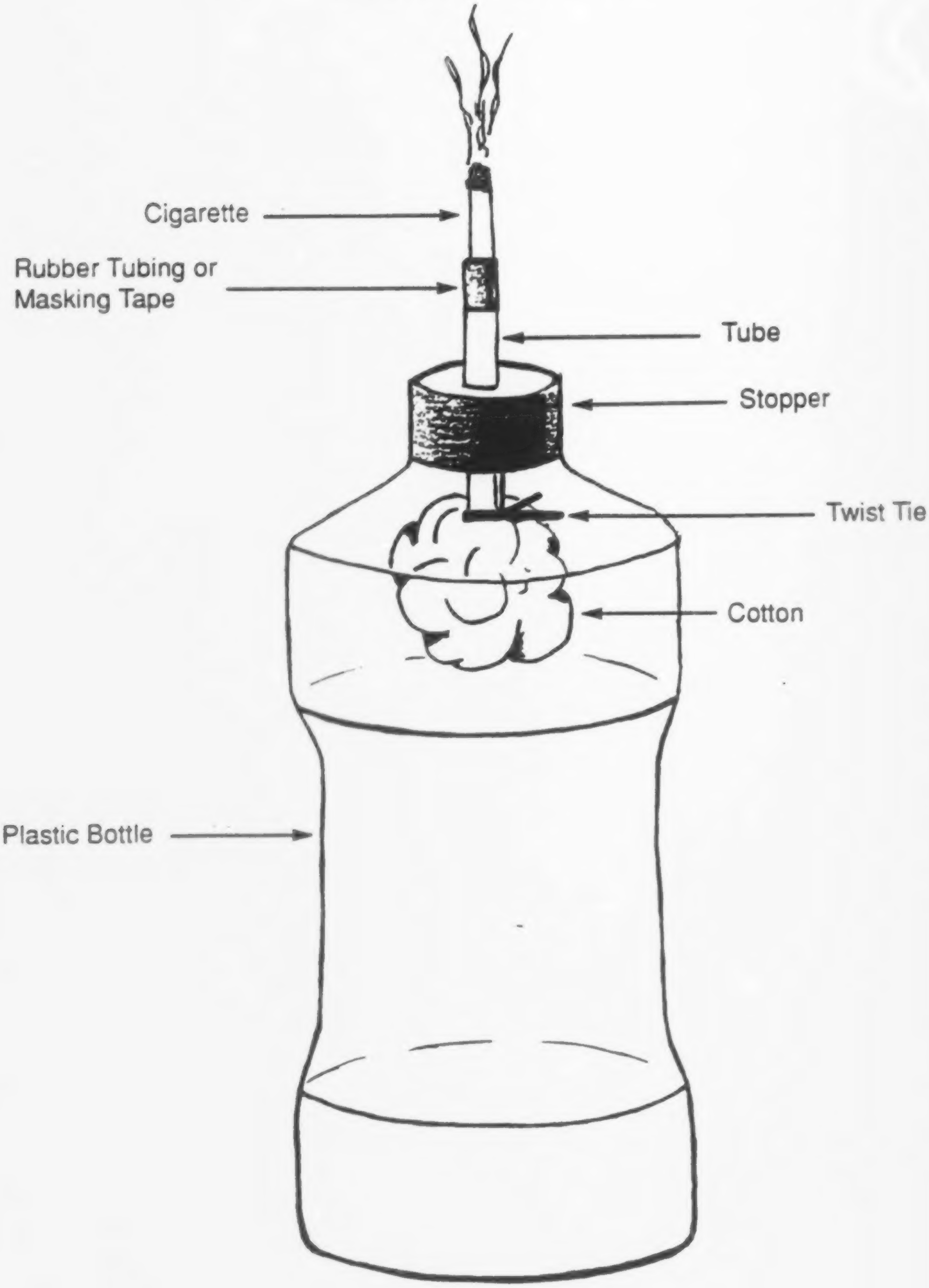
Eat sensibly. Overweight individuals are at greater risk for diabetes, gall bladder disease, and high blood pressure. So it makes good sense to maintain proper weight. But good eating habits also mean holding down the amount of fat (especially saturated fats) cholesterol, sugar and salt in your diet. If you must snack, try nibbling on fresh fruits and vegetables. You'll feel better - and look better, too.

Exercise regularly. Almost everyone can benefit from exercise - and there's some form of exercise almost everyone can do. (If you have any doubt, check first with your doctor.) Usually, as little as 15-30 minutes of vigorous exercise three times a week will help you have a healthier heart, eliminate excess weight, tone up sagging muscles, and sleep better. Think how much difference all these improvements could make in the way you feel !

Learn to handle stress. Stress is a normal part of living; everyone faces it to some degree. The cause of stress can be good or bad, desirable or undesirable (such as promotion on the job or the loss of a spouse). Properly handled, stress need not be a problem. But unhealthy responses to stress - such as driving too fast or erratically, drinking too much, or prolonged anger or grief - can cause a variety of physical and mental problems. Even on a very busy day , find a few minutes to slow down and relax. Talking over a problem with someone you trust can often help you find a satisfactory solution. Learn to distinguish between things that are "worth fighting about" and things that are less important.

Be safety conscious. Think "safety first" at home, at work, at school, at play, and on the highway. Buckle seat belts and obey traffic rules. Keep poisons and weapons out of the reach of children, and keep emergency numbers by your telephone, you'll be prepared.

Plate F
SMOKING MACHINE


Cigarette
Rubber Tubing or
Masking Tape
Tube
Stopper
Twist Tie
Cotton
Plastic Bottle

Variation is a two holed stopper.

SMOKING MACHINE

A. PURPOSE:

To show the accumulation of tar on cotton balls.

B. APPROPRIATE AGE GROUP:

Primary School

C. EQUIPMENT:

1. Plastic window cleaner container, or other empty plastic container, transparent if possible.
2. ball point pen barrel or other tubing approximately the size of a cigarette.
3. Cotton.
4. Cigarette and matches.
5. Ashtray or other item to catch ashes.

D. PROCEDURE:

You may wish to conduct experiments outside or with the windows open to avoid side steam smoke.

1. Rinse the container thoroughly.
2. Make an opening in the cap of the container to fit the tubing into the cap.
3. Place the tubing in the opening and seal tight with cement or clay if needed.
4. Insert loosely packed cotton ball into tubing.
5. Insert cigarette into open end of tubing.
6. Press firmly on the container to force air out, lighting the cigarette, and then proceed with slow and regular pumping action.
7. Withdraw cotton from tubing to show accumulation of tar.
8. Pass container around for individual to smell and to observe that smoke continues to be expelled for a period of time.

VARIATION:

1. Divide into groups and conduct several experiments keeping close supervision for safety.
2. Try same experiment with filter cigarette.
3. Compare filter and non-filter cigarettes.

E. KEY POINTS FOR DISCUSSION:

1. What happens to your lungs when you smoke?
2. Is this experiment similar to what happens to your lungs?
3. Consider this effect multiplied by 20 or 30 times per day for 5, 10, or 20 years?

PATHWAYS OF ALCOHOL

Plate G

How does alcohol work? This diagram shows you what happens to this drink after it's swallowed.

1

STOMACH

Passes quickly through the stomach though food can slow it down for a short time.

2

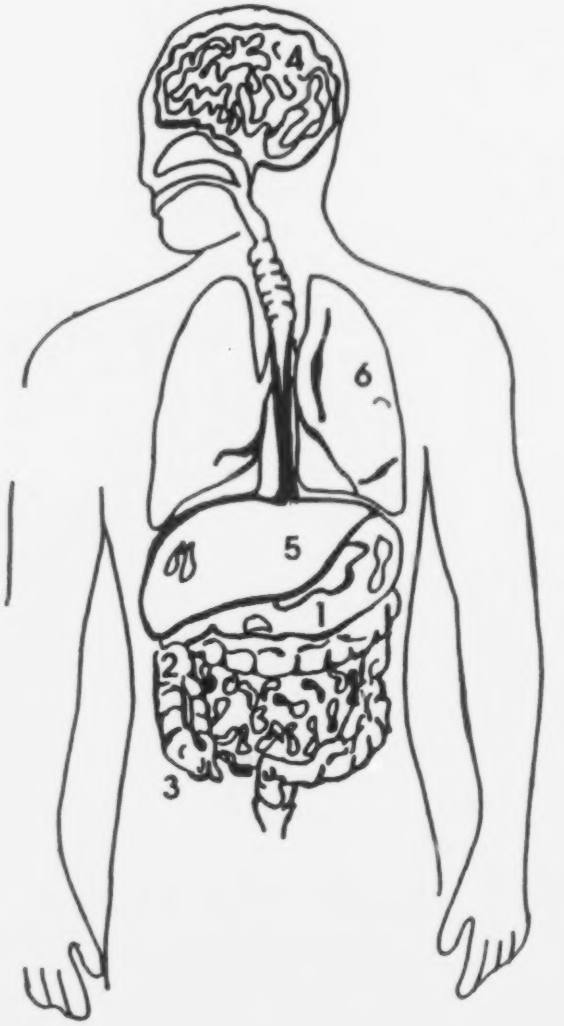
SMALL INTESTINE

Goes through the wall of the small intestine almost immediately. It's not food so it is not digested.

3

BLOOD STREAM

Travels in the blood to all parts of the body. Keeps on circulating through the body until it is broken down and eliminated.



4

BRAIN

Reaches into and depresses certain areas of the brain. Added drinks reach deeper, knocking out control center one by one. Sequence is:

- ☐ *Judgement*
- ☐ *Inhibition*

- ☐ *Reaction time*
- ☐ *Coordination*

- ☐ *Vision*
- ☐ *Speech*
- ☐ *Balance*

- ☐ *Walking*
- ☐ *Standing*

- ☐ *Consciousness*

- ☐ *Breathing*
- ☐ *Heartbeat*

- ☐ *Life*

5

LIVER

90% broken down here at rate of 1/2 ounce every hour.

6

LUNGS & KIDNEYS

About 10% eliminated here in breath and urine.

Health Decisions

Plate H

Directions:

✔ **A. Complete the stories on another sheet of paper.**
✔ **B. What substance was involved?**
✔ **C. How could it have been misused in the situation?**

1. John's parents are having a party and they will serve wine to their friends. John wants to drink a full glass of wine to see how he feels after the drink.

2. Mary is allergic to eggs and can become very sick if she eats anything with eggs in it. She knows the cake her mother has bought is made with eggs, but she wants a piece anyway.

3. Helen is beginning to have a weight problem. Sometimes she eats a lot of cake and candy when she feels lonely and unhappy, to make herself feel better.

4. Bob is very hungry when he comes home from school. He wants to finish the leftover meatloaf in the refrigerator, but the meat smells "funny".

5. Mandy hurt her hand. She knows the dentist had given her brother medicine for pain when he had his tooth taken out. Maybe she can use that for her pain.

6. Michael's friend came over to his house after school. While they were fooling around, one of the boys started spraying hair spray in the faces of the other boys.

7. Donald is in the garage where his father is preparing to put the insecticide into the spray can. His father leaves the garage for a moment to answer the telephone. Donald wants to examine the solution.

8. Cheryl has a new baby sister. Her mother is busy in the kitchen. Cheryl wants to put powder on the baby so she will smell nice. She takes a white powder that has no label on it from the bathroom cabinet.

9. Ed is carrying an uncovered bottle of bleach to his sister, who is washing her blouse in the sink. Some of the bleach splashes up into Ed's eyes when he sets it down on the countertop.

10. Danny and Tom are playing in their room. They have decided to play that they are chemists. Both boys collect some cleaning solutions to mix together. They begin to feel dizzy and sick.

NATIONAL HOUSEHOLD SURVEY ON DRUG ABUSE

United States - 1985

Plate I

Percent Using by Age Category

	12-17	18-25	26-34	35+	Total
Marijuana					
Lifetime	23.7	60.5	58.5	15.9	32.5
Annual	19.9	36.9	25.1	3.8	15.3
Current	12.2	21.7	16.8	2.2	9.4
Cocaine					
Lifetime	5.2	25.2	24.1	4.2	11.7
Annual	4.2	16.3	12.6	1.2	6.3
Current	1.7	7.6	6.1	*	2.9
Inhalant					
Lifetime	9.1	12.8	9.9	3.2	6.8
Annual	5.0	2.2	1.5	*	1.5
Current	3.4	0.9	1.0	*	0.9
Hallucinogens					
Lifetime	3.2	11.5	16.8	2.3	6.7
Annual	2.6	3.6	2.3	*	1.4
Current	1.1	1.6	*	*	*
Amphetamine Stimulants					
Lifetime	5.5	17.3	18.2	4.2	9.2
Annual	4.2	10.1	7.2	1.0	10.4
Current	1.6	3.8	2.2	*	1.3
Sedatives					
Lifetime	4.0	11.0	12.4	2.6	6.0
Annual	2.9	5.1	4.9	0.9	2.6
Current	1.0	1.6	1.2	*	0.8
Alcohol					
Lifetime	55.9	92.8	93.2	88.0	86.1
Annual	52.0	87.4	84.0	69.9	73.5
Current	31.4	71.5	70.0	57.3	59.2
Cigarettes					
Lifetime	45.3	76.0	80.6	80.4	75.7
Annual	25.8	44.6	44.2	32.9	36.2
Current	15.5	37.1	40.2	30.1	31.5
Any Illicit Drugs					
Lifetime	29.6	64.8	62.1	20.4	36.9
Annual	23.6	42.0	31.5	6.6	19.3
Current	15.1	25.5	20.7	3.9	13.3

Lifetime Use	Use at least once in a lifetime
Annual Use	Use at least once in the past year
Current Use	Use at least once in the past month

Source: National Household Survey on Drug Abuse, 1985

* Numbers not available

INVESTIGATION OF NICOTINE'S EFFECT ON LUNG ORGANISM

A. PURPOSE:

Plate J

To demonstrate the effect of a nicotine solution on living organisms (while the solution contain more than just nicotine, the effects observed will be primarily due to this substance).

B. APPROPRIATE AGE GROUP:

Middle through Secondary School

C. EQUIPMENT:

1. Water life such as daphnia, paramecia or gold fish (keep moist) ideally 1 per two students.
2. Separate containers of cigarette tobacco, chewing tobacco, and snuff soaked over night in water.
3. Microscope
4. Slide

NOTE: *Lab facilities would be very useful.*

D. PROCEDURE:

1. Place living organism into water containing one of the tobacco solutions.
2. Observe effect on its metabolism through a microscope.
*3. In the case of goldfish, place drops of the solution on the tail fin. Hold fish in cotton gauze and keep fish moist. Note the movement of blood in the vessels of the tail.
4. Repeat procedure, using different solutions.
5. Note differences.

E. KEY POINTS FOR DISCUSSION:

1. Is nicotine found in all types of tobacco?
2. Nicotine has a constrictive effect on the blood vessels. What are the physical reactions that may occur as a result of this effect ? (measured heart rate, elevated BP)
3. Which component in cigarette smoke promotes physiological dependency?
4. What are the effects of nicotine on the human body?

"Science and Health Experiments and Demonstrations in Smoking Education"
American School Health Association

SIMULATED BLOOD VESSEL CONSTRICTION

A. PURPOSE:

To illustrate the constricting effects of cigarette smoking upon blood vessels.

B. APPROPRIATE AGE GROUP:

Primary through Secondary School

C. EQUIPMENT:

1. Two straws of plastic tubes with different diameters
2. Two glasses of water
3. Catch basin

D. PROCEDURE:

1. Fill two glasses with equal amounts of water.
2. Ask for two student volunteers. Give each student a straw and instruct them to blow into the straws continuously. Set time limit for about 15 seconds.
3. Have class predict and then determine which student must blow the hardest, and which student tires more easily.

VARIATION:

1. Have two students pour an equal amount of liquid through two funnels with different size openings. Note flow rate.
2. Consider making it a contest.
3. Combine with experiment #2.
4. Consider graphing results.

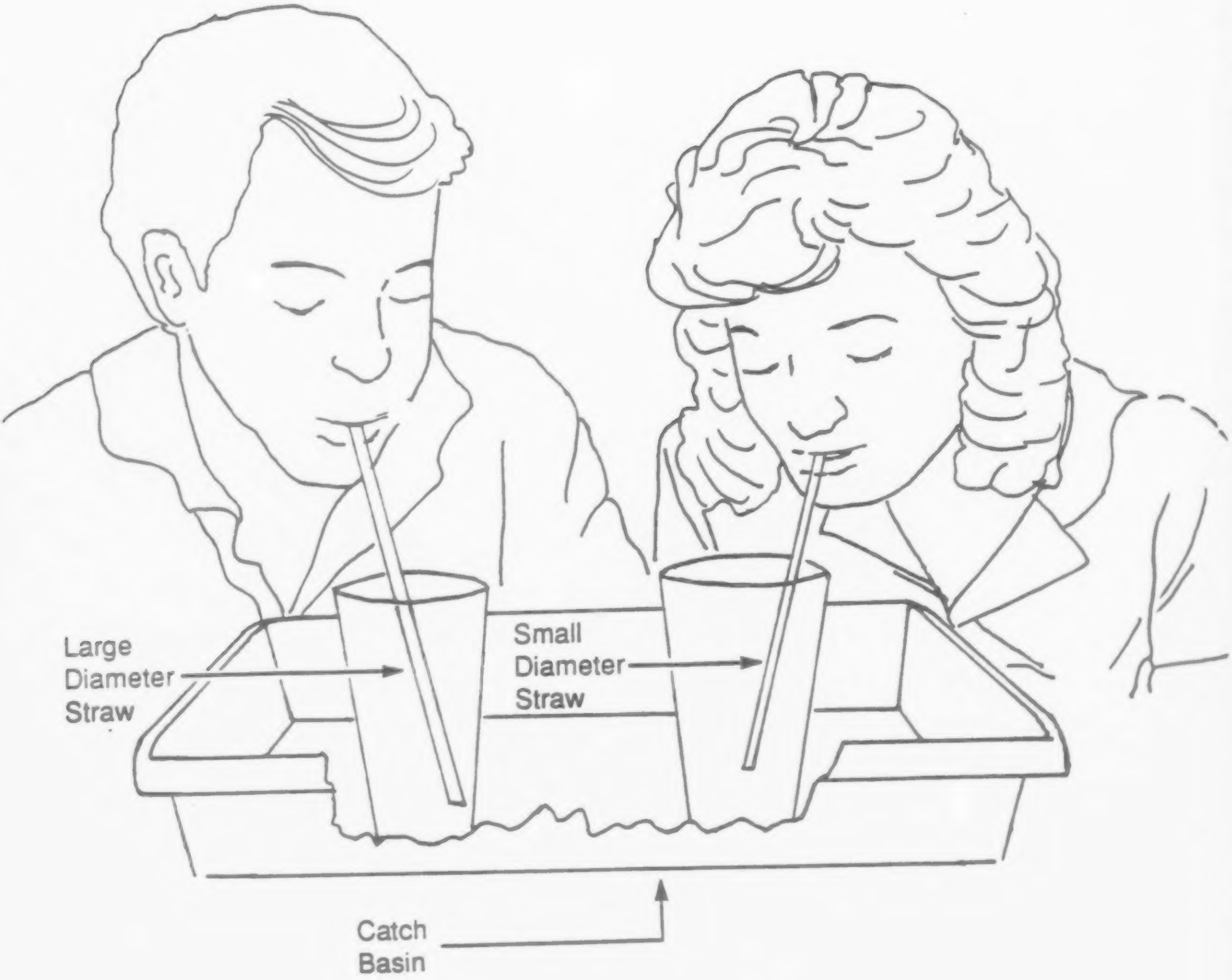
E. KEY POINTS FOR DISCUSSION:

1. Draw the analogy that when a person smokes, his blood vessels are constricted (like the smaller straw) thus causing the heart to work harder to pump blood through the vessels.
2. What is hypertension? What do you think would be the effects for someone who smokes and has hypertension?
3. What is Buergers disease?
4. What do people do to relieve hypertension?

"Science and Health Experiments and Demonstrations in Smoking Education"
American School Health Association

SIMULATED BLOOD VESSEL CONSTRICTION

Plate K


Large Diameter Straw
Small Diameter Straw
Catch Basin

BLOOD PRESSURE ANALOGY

A. PURPOSE:

To demonstrate the effect of reducing the diameter of simulated blood vessels.

B. APPROPRIATE AGE GROUP:

Primary through Middle School

C. EQUIPMENT:

1. Two equal size plastic beakers or jars
2. 1/2 " and 1/4" tubing
3. 1/2" and 1/4" plug
4. Water
5. Sink or container to collect water

D. PROCEDURE:

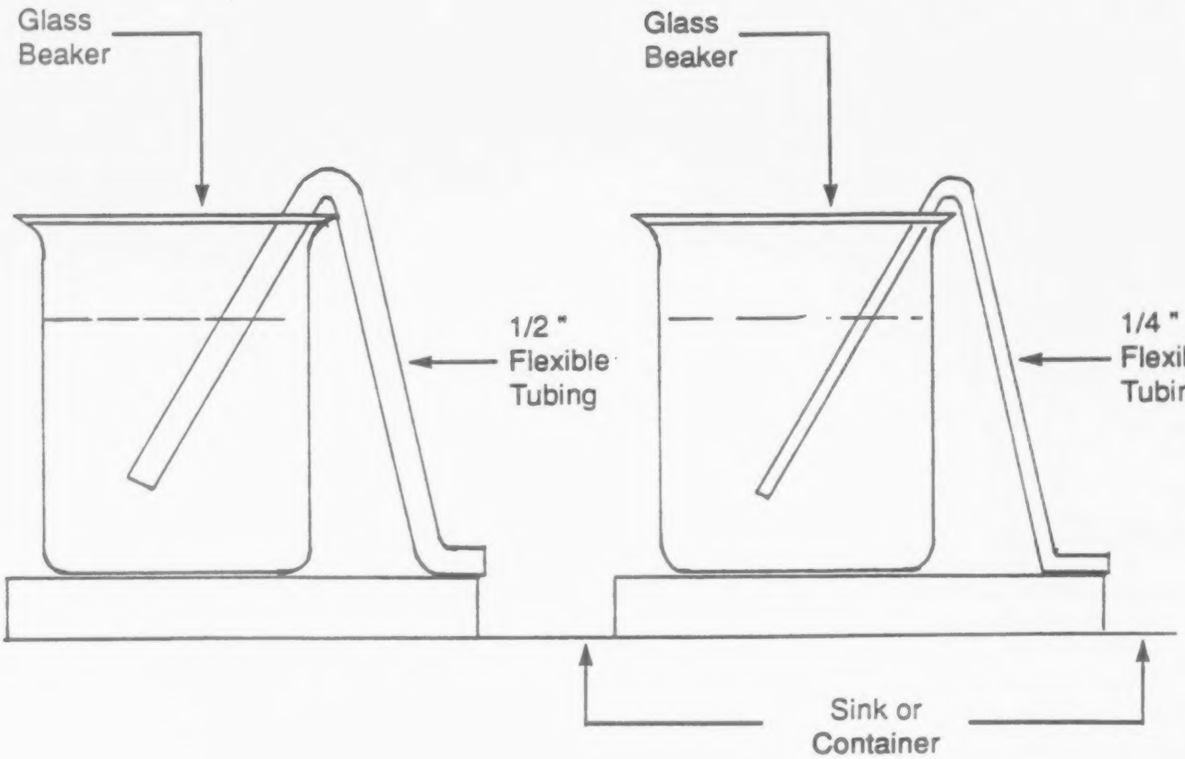
1. Insert one tube with plug in each beaker, with tubing 1" from bottom of beaker.
2. Fill beaker with equal amounts of water.
3. Have students remove plugs from both tubes (over sink or container).
4. Observe differences in the distance and force with which the water leaves each tube.
5. Using equal volumes of water, students can time both experiments and mathematically compare time to empty into the different size tubes.

E. KEY POINTS FOR DISCUSSION:

1. What is blood pressure?
2. Why does the beaker with the 1/4" tube empty with greater force? (This measured by the distance of the stream of water leaving the tube).
3. In a human, what effect might this constriction have on blood flow?
4. What is high blood pressure?
5. What can be done about high blood pressure?

BLOOD PRESSURE ANALOGY

Plate L


Glass Beaker
1/2 " Flexible Tubing
Glass Beaker
1/4 " Flexible Tubing
Sink or Container

HEALTH COMPONENT	POSSIBLE EFFECTS
Mental Health	Interferes with learning and school performance Intensifies moods Interferes with problem-solving skills Increases stress Causes organic mental disorder Produces psychological dependence Causes various brain disorders
Family and Social Health	Increases number of family arguments Gives a false sense of effective communications Increases violent interactions Causes FAS
Growth and Development	Destroys brain cells Impairs physical skills Affects and dulls all senses Lowers body temperature Increases heart rate and blood pressure
Nutrition	Interferes with appetite and vitamin absorption Causes niacin and thiamine deficiency
Exercise and Fitness	Interferes with coordination and muscle movement Decreases physical performance
Drugs	Produces serious side effects when used with other drugs Depresses brain and respiration center and may cause coma or death when used with narcotics Causes dizziness or clumsiness when used with tranquilizers
Diseases and Disorders	Causes cirrhosis of the liver Increases the likelihood of heart disease Increases the likelihood of cancer of the mouth, esophagus, larynax and pharynx when combined with smoking cigarettes Causes kidneys to overwork
Consumer and Personal Health	Has an offensive odor to others Increases perspiration Is an expensive habit Causes feelings of nausea, tiredness, thirst and headache
Safety and First Aid	Increases drowning, falls,fires Is responsible for most auto accidents and traffic deaths Is involved in most crimes and murders
Community and Environment Health	Adds costs in industry, law enforcement, health and family life Adds to environmental pollution

Plate M

LSD

Classification:	**hallucinogen or psychedelic drug**
Slang Names:	acid, LSD-25, microdots, purple mikes, windowpane, blotter
Method of Use:	orally, injected (rare)
Dependence potential:	psychological dependence

Lysergic Acid Diethylamide, LSD, is a derivative from ergot, a fungus that grows on rye and other grains. It was discovered in 1938 and was used in the early 1950s for experimentation by doctors and therapists to treat individuals with mental disorders, alcoholism, epilepsy and terminal cancer. These experiments proved unsuccessful but the interest in LSD grew as reports of its alleged mystical effects peaked curiosity in many. In response to the growing use of LSD, legislators passed laws in the mid-1960s banning the manufacture and use of this drug. However, illegal laboratories and black market dealers were already producing the drug.

LSD is one of the most potent of all drugs because it is active in extremely small amounts. One dose is usually 50 to 300 micrograms which is equivalent to 0.00005 to 0.00003 grams. One ounce is able to supply approximately 300,000 doses. LSD is odorless, colorless and tasteless. It is sold on the street in tablets or capsules. In its liquid form it is placed in or on another substance and allowed to dry. These substances include sugar cubes, postage stamps, "microdots" - tiny balls of compacted powder, "windowpane" - small squares of gelatin sheets or cellophane and "blotter" - small squares of paper. When added to the gelatin sheets or blotter paper it is divided into small squares, with each representing a dose, then the LSD is licked off or swallowed.

LSD users are unlikely to take it while at school, work or home where they might be observed. Especially during the early stages of its use, these drugs are generally taken in a group situation under conditions that will enhance their effect such as at a party.

The Body's Reaction to LSD

LSD is quickly absorbed from the stomach and intestines and effects are felt within 30 to 40 minutes. The physical effects of LSD include dilated pupils, higher body temperature, increased heart rate and blood pressure, sweating, loss of appetite, sleeplessness, dry mouth and tremors.

Within an hour after ingestion of LSD, psychic effects occur which causes a distortion in sensory perception. All of the body's senses are affected by LSD, but vision is affected the most. The color and texture of things become more vivid and perception is increased. Pseudohallucinations - unreal images that the LSD user can distinguish as unreal - are common occurrences. Hallucinations - the user believes an imaginary vision is real-is uncommon at ordinary doses. Synesthia is also frequent among LSD users. Synesthia is the occurrence of one type of stimulation that triggers the sensation of another stimulation - such as hearing a sound that causes the visualization of a color. The sensory input to the

LSD user can become so distorted that they may "see" music or "hear" color. Other psychic effects experienced by users include a loss of body image, a loss of a sense of reality, a distorted sense of time, difficulty in concentrating and a short attention span. Users also develop an extreme preoccupation with philosophical ideas and may perceive that they can "solve the problems of the world."

LSD users can experience emotional changes while taking the drugs. They exhibit dramatic mood swings - often going from extreme happiness to deep depression. Minor events - such as the sun going behind a cloud - can trigger these mood swings. Users may also laugh at times of sadness or cry during happy occasions.

Tolerance - the need for increased amounts of the drug to produce the same effect-occurs quickly with the continued use of LSD but disappears quickly when use is stopped. Cross-tolerance - the developed tolerance to one drug due to the use of another drug within its pharmacological class - occurs with the use of other hallucinogens such as mescaline (from the peyote cactus) and psilocybin (from certain mushrooms).

Flashbacks - in which the person spontaneously experiences a drug's effects without taking the drug-can occur without warning for up to a year or longer after the use of LSD. Flashbacks are most likely to occur among frequent users rather than those who seldom used the drug and the longer the time since the use of LSD the less likely the chances of experiencing one. Flashbacks can occur at any time or place and may be initiated by stress or the use of other drugs. The reason flashbacks occur are unknown but it is thought that they may represent behavior learned under the influence of LSD or may be the result of unresolved emotional-psychological conflicts which arose during a "trip."

What is a "Bad Trip"

Acute panic reactions can also occur with the use of LSD. This reaction results in what is referred to as a "bad trip" and the user feels as if they are in extreme danger. These scary sensations may last a few minutes or several hours. The user may experience confusion, anxiety, panic, suspiciousness, a feeling of helplessness and a loss of control. Sometimes, LSD and other hallucinogens can unmask mental or emotional problems that were previously unknown to the user. If the panic reactions become intense, a drug-induced psychosis can occur. This psychosis may be brief or it may last for several years and is almost impossible to predict when, where, or to whom a reaction will occur.

A "bad trip" is generally a confusing and frightening state that will pass in time. When someone is experiencing a panic reaction, do not leave them alone. Remain calm, because they are extremely sensitive to the mood of those around them and may become more fearful if they see others panicking. Try to create a calm atmosphere by turning off bright lights and keeping the room quiet. Reassure the person that what they are experiencing is the result of a drug and the feelings will pass. Talk to them about nonthreatening things such as a pleasant memory or distract them with visual toys or calming music anything that will get their mind out of the panic state. This will help draw the user out of the frightening experience and into a familiar place. Panic reactions can usually be handled by a calm and rational person but if the user becomes uncontrollable, it is best to seek medical or professional help.

LSD and Driving

There are numerous reasons why the combination of LSD and driving are dangerous. The drugged driver's vision is distorted and they may see imaginary objects in the road, swerve to miss them, and lose control of the car. Or, a real image may be so distorted that the driver thinks it is an illusion and will not attempt to avoid it - therefore causing an accident. Whatever the case, LSD causes the user to distrust their senses and could result in a serious injury or death.

Signs and Symptoms of LSD Use

The following signs and symptoms are common among LSD users:

Extremely dilated pupils
Warm skin, excessive perspiration and body odor
Distorted sense of sight, hearing and touch
Distorted sense of time, self and place

Mood and behavior changes, the extent depending on emotional state of the user and environmental conditions

For More Information:

Clearinghouse
Florida Alcohol and Drug Abuse Association
1286 North Paul Russell Road
Tallahassee, Florida 32301
904/878-6922

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Plate N

DUI - Driving Under the Influence

Driving under the influence (DUI) of alcohol or other substances is a dangerous game. On any given weekend night, one out of every ten drivers is legally drink: only one out of every 2,000 will be arrested. According to the National Highway Traffic Safety administration, 51 percent of all fatal accidents are alcohol-related. NSTSA also estimates that two out of every five people in the U.S. will be in an alcohol-related crash in their lifetime.

In Florida, 1,560 people lost their lives last year to drinking and driving. On these, 269 were under the age of 21. In 1987, there were 64,260 arrested for driving under the influence, of which 562 were juveniles.

When consumed, alcohol acts as a depressant on the central nervous system. Alcohol is almost immediately absorbed into the bloodstream. It takes approximately 30 seconds for the first amount of alcohol to reach the brain resulting in slower reflexes, lack of coordination, poor vision, reduce concentration, and poor judgement.

The amount of alcohol in the blood is called the blood alcohol content (BAC). The amount of alcohol in the body can be measured by using a breath, urine, or blood test. This amount is measured as a percentage - how many parts of alcohol to how many parts of blood.

For a person weighing 120-140- pounds, three drinks within a two hour period will produce a BAC of .05 percent. At this time, driving ability will be serious impaired. Four to five drinks within two hours will put a drinker at the legally intoxicated limit with a BAC of .10 percent. At this time, a drinker will experience blurred vision, slurred speech, poor muscle coordination, and a lack of rational judgement. If no more alcohol is consumed, it will take approximately three hours for the BAC to drop less than ,05 percent. The risk of a person with a BAC of .10 percent having an accident is twelve times higher than for a person had not been drinking.

Eliminating alcohol from the body is a long process. About 90 percent must be metabolized through the liver. The other 10 percent is eliminated through the lungs (breathing) and urine. Nothing can speed up this process. "Remedies," like cold showers, fresh air, drinking coffee, and exercising to sweat out the alcohol have no effect on the blood alcohol content. Time is the only cure for someone who has had too much to drink.

It takes approximately one hour to eliminate 1/2 ounce of alcohol. This is the amount of alcohol in one 12-ounce can of beer, one 5-ounce glass of wine, or 1 1/2 ounces of 80-proof whiskey. Thus, beer=wine=liquor. It does not matter what you drink - but how much alcohol is consumed!

JUST THE FACTS

Teens: Drinking and Driving

Motor vehicle accidents are the number one killer of teenagers, taking nearly 10,000 lives annually. Alcohol is a factor in about half of all serious car accidents involving youth.

The high incidence of speeding among teens, the danger of driving at night, and the low percentage of seat belt use among teens are other factors that contribute to teenagers and the risk of accidents.

Drinking: Driving and the Law

Under Florida law, DUI, (Driving Under the Influence) is an offense evidenced by impairment or normal faculties or an unlawful blood level of .10 percent or above. The following are the current possible penalties for a first time offense:

A fine of $250.00 to $500.00 for BAC of .10 percent. If the BAC is .20 percent or higher, the fine is $500.00 to $1,000.00

Mandatory 50 hours of community service

Imprisonment of up to six months

Driver's license revoked for a minimum of six months, maximum of one year

Mandatory completion if DUI school

Monthly probation for up to a year

If there have been property damage, personal injury, or death, a first offender faces a fine between $1,000 and $10,000 or a prison term of one to 15 years.

DUI penalties for a first offense in three countries vary from having the convicted driver's name published in the newspaper in Australia, one year at hard labor in Sweden and Finland, or to death by a firing squad on El salvadore.

Other Drugs and Driving

Alcohol is not the only drug that affects driving ability. Any substance that changes one's feelings, perceptions, and behavior affects judgement behind the wheel.

Marijuana created the illusion that senses are sharper; however, a person's sense of time and space is altered, making it difficult to judge distance and speed. Even hours after the high is gone, a marijuana user can experience difficulty dealing with sudden or unexpected events.

Hallucinogens. LSD, PCP, or other hallucinogens can make a driver hear, see, smell and feel things that do not exist. The driver will concentrate on the hallucinogens instead of the road. Hallucinogens may cause the driver to panic and lose control of the car.

Inhalants such as glue, paint, solvents, aerosols and other products with fumes can cause the same mind changes as other hallucinogenic drugs, with the same consequences for driving.

Stimulants, like cocaine and speed, increase physical energy and mental activity, making it hard to sit still or concentrate. Users of stimulates may experience nervousness, dizziness, and visual problems. They may experience fatigue and depression when the high is gone. Stimulants can lead a driver to overestimate his abilities, which can cause him or her to take unnecessary chances on the road.

Sedatives numb the central nervous system causing muscle relaxation and drowsiness. A driver, using sedatives, lacks muscle coordination and the ability to make rational judgements.

Over-the-Counter- Drugs, such as antihistamine and other medicines for treating colds, have the same effects as sedatives, clouding judgement, and causing the driver to feel drowsy.

Mixing alcohol with other drugs can be deadly because the effects of each drug can be multiplied, leading to death.

Preventing DUI

Millions have suffered because of the carelessness of drunken drivers. Arresting drunk drivers is only part of the solution.. Tougher DUI laws need to be established and enforced. Educating the public on the dangers of alcohol and drugs and the consequences of driving under the influence is imperative.

It is ultimately the responsibility of each of us to keep impaired drivers off the road. If you know someone who has had too much to drink - don't let him or her get behind the wheel. Take the car keys, find that person another ride, or wait until they have sobered up enough to drive. If a drinking driver refuses your help, do not get in the car yourself and be sure to keep anyone else from accepting a ride. These may seem like impossible tasks, but you may be saving lives: those of the drinker, the passengers, and innocent victims.

Help make our roads safe - learn how alcohol and drugs affect driving ability, and use that knowledge to protect yourself and those around you.

For more information:

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ALCOHOL

Classification: Depressant
Slang Names: Booze, Juice, Brew, Vino, Hooch
Method of Use: Orally
Dependence Potential: Physically and psychologically addictive

Alcohol is the most widely used and abused drug in America.

Alcohol abuse accounts for approximately 98,000 deaths annually. More than one-half of all murders are committed by people under the influence of this drug. One-half of all arrests, 90 percent of assaults, and over 50 percent of all rapes are related to alcohol use.

One out of every three American adults—56 million people—reports that alcohol abuse has brought trouble to his or her family. Drinking is estimated to be involved in about 50 percent of all spouse abuse cases and up to 30 percent of child abuse cases.

Social costs of alcohol addiction amount to $118 billion a year in lost work time and related health costs, according to the National Institute on Drug Abuse figures. Federal spending on research in alcohol addiction totaled $81 million in 1988, according to the National Institute on Alcohol Abuse and Alcoholism.

Alcoholism is one of the most preventable illnesses; yet seven out of ten adults drink alcohol. Of these, one out of ten is an alcoholic.

What is Alcohol?

The active ingredient in all alcoholic beverages is ethyl alcohol (ethanol), which is produced by yeast cells acting on carbohydrates in fruits and grains. Ethyl alcohol works much like ether—acting as an anesthetic to put the brain to sleep.

Alcohol is a central nervous system depressant that slows down bodily functions such as heart rate, pulse, and respiration. Small quantities of alcohol may induce feelings of well-being and relaxation; but in larger amounts, alcohol can cause intoxication, sedation, unconsciousness, and even death.

There are three types of alcoholic beverages:

Beer is fermented from grains and contains three to six percent alcohol.
Wine is fermented from fruit and normally contains 12 to 14 percent alcohol. Fortified wines have additional alcohol added and contain 18 to 20 percent alcohol. Wine coolers are a mixture of fruit juice, sugar, and red or white wine, and contain four to seven percent alcohol. (This is approximately the same alcoholic content as beer.)

Liquor is made from distilled (boiled off) alcohol and contains 40 to 50 prcent alcohol. This is expressed as degrees of proof (two proof equals one percent alcohol). For example, 80 proof liquor is 40 percent alcohol.

Factors That Influence Alcohol's Effects

Drinking has different effects on different people, and the same amount of alcohol can affect the same person differently on different occasions. Four factors influence how alcohol affects people:

1. Amount of Alcohol. The more alcohol, the stronger the effects. A person may drink beer, wine, or whiskey; what matters is the amount of alcohol that is consumed.

2. Body Weight. People who weigh more are less affected by the same amount of alcohol than lighter people. Alcohol is water soluble—heavier people have more blood and water in their bodies, so the same amount of alcohol will be more diluted.

   Gender also affects the influence of alcohol. Women have a higher proportion of fat and lower amounts of water in their bodies than men; therefore, a woman will have a higher blood alcohol content than a man who is of the same weight and who drinks the same amount.

3. Food. Alcohol "goes to the head" more slowly if one has just eaten or if one eats while drinking. Food slows down the passage of alcohol from the stomach to the small intestine.

4. Attitudes. What a person expects to happen after drinking has a lot to do with what does happen. A drinker who expects to get "high" is more likely to feel or act "high." In one study, an experienced group of drinkers was given a glass of something nonalcoholic but was told it contained alcohol. Most of the group still got "high."

Immediate Effects of Alcohol

When consumed, alcohol goes right to the stomach and passes through to the small intestine, where it is absorbed into the bloodstream. It takes about 30 seconds for the first amounts of alcohol to reach the brain after ingestion. Once there, alcohol acts primarily on nerve cells deep in the brain.

One drink for the average person (a 12-ounce beer, five ounces of wine, or one and one-half ounces of 80-proof whiskey) will bring a feeling of relaxation. Two and a half drinks in an hour can affect the drinker's judgment and lower his inhibitions. Five drinks in two hours will raise the blood alcohol level (BAL) to 0.10, the level considered illegal for driving in most states. The blood alcohol level is the percentage of alcohol in the bloodstream.

After this amount of alcohol, the average drinker will experience blurred vision, slurred speech, poor muscle coordination, and a lack of rational judgment. Ten drinks will yield a blood alcohol level of 0.20. It will take ten hours for the alcohol to be completely metabolized. After more than 12 drinks, the BAL will rise to 0.30 and the drinker will be in a stupor. A BAL of 0.40 to .050 will induce coma. A drinker in this condition may be near death because he could vomit and choke while unconscious. Breathing is likely to stop with BAL of .60.

Eliminating alcohol from the body is a long process. About 90 percent must be metabolized through the liver. The remaining ten percent is eliminated through the lungs and urine. It takes about one hour to eliminate one-half ounce of alcohol.

Heavy drinking in a short period of time will often cause a hangover the next day. A hangover is a sign of alcohol poisoning; it is the body's reaction to alcohol withdrawal. Symptoms of a hangover include nausea, disorientation, headache, irritability, and tremors.

What is Alcoholism?

Though there are many definitions, E.M. Jellinek, a pioneer in alcohol studies, defines alcoholism as "any use of alcoholic beverages that causes any damage to the individual or to society or both."

Currently there are three different theories to explain alcoholism:

Genetic Theory defines alcoholism as the result of a predisposed reaction to alcohol due to chromosomes, genes, or hormonal deficiencies.

Psychological Theory defines alcoholism as a condition that exists in which people have a preset disposition or personality that sets off a reaction to alcohol.

Sociological Theory defines alcoholism as a learned response and that addiction is a result of the influences of society.

Whatever definition or theory we use, we know that alcoholism is a progressive illness that can be treated. Each alcoholic has a different drinking pattern, but the one thing all alcoholics have in common is an uncontrollable drinking habit.

Alcoholism has three distinct stages:

Early Stage

A drinker in the early stage of alcoholism uses alcohol as a coping devise to relieve tension or escape from problems. The drinker must drink more and more to achieve the same effect, and he has trouble stopping after one drink. He makes promises to quit drinking but never follows through.

Middle Stage

A drinker in the middle stage of alcoholism cannot get through the day without alcohol. He may need a drink in the morning to overcome the "shakes." The middle-stage drinker will begin to manipulate others, lie about drinking, and may drink in secret or hide alcohol. It is harder and harder to get the same effects as tolerance builds. Irregular heart beat, hypertension, loss of appetite, irritability, and insomnia are physical and psychological problems at this stage. He denies drinking is a problem.

Late Stage

The drinker now lives to drink. He avoids and distrusts others. All ambition is lost and the drinker is unable to cope with responsibility and is often absent from work. A late-stage drinker may suffer from reverse tolerance: the brain and liver can no longer tolerate a high level of alcohol, so the drinker becomes impaired after even small amounts of alcohol.

Malnutrition, nerve dysfunction, loss of memory, mental confusion, impaired vision, hypertension, heart disease, cirrhosis of the liver can occur during this stage. If drinking stops, there are severe withdrawal reactions. Late-stage psychological problems include shame, guilt, severe depression, violent behavior, low self-esteem, loss of control of emotions, loss of concentration and learning ability.

At this point, the drinker hits rock bottom. The alcoholic may continue to drink despite pain or disability. His only viable alternative is to seek treatment.

Long-term Effects of Alcohol

Frequent and prolonged use of alcohol has many detrimental effects on the body. Heavy drinkers develop a tolerance for alcohol, which means that larger amounts of alcohol are needed to get the desired effect.

A drinker is physically dependent if he experiences withdrawal symptoms when alcohol use is discontinued abruptly. Symptoms vary but include delirium tremors (the "DTs"), cramps, vomiting, elevated blood pressure, sweating, dilated pupils, sleep problems, irritability and convulsions. Most of these symptoms will subside in two to three days, though irritability and insomnia may last two to three weeks. A drinker is psychologically dependent when he becomes so preoccupied with alcohol that it is difficult to do without it.

Short-term memory loss and blackouts are common among heavy drinkers. A blackout, which is an amnesia-like period often confused with passing out or losing consciousness, results when the drinker appears normal and may function normally; however, the person has no memory of what has taken place. Research indicates that blackouts are associated with advanced stages of alcoholism, and there is a correlation between the extent and duration of alcohol consumption during any given drinking episode and the occurrence of blackouts.

Medical Complications of Heavy Alcohol Use

Gastrointestinal System

Alcohol acts as an irritant and increases the amount of hydrochloric acid (a digestive juice) that is secreted from the stomach lining. Intoxicating amounts of alcohol cause the digestive process to stop, robbing the body of vital vitamins and minerals.

Alcohol in combination with other stomach irritants such as aspirin can cause gastritis, ulcers, and severe bleeding.

Liver Disorders

The liver maintains the blood sugar level in the body. This sugar (glucose) is the only source of energy that brain cells can use. When alcohol is consumed, the liver's attention is diverted from maintaining the sugar level to ridding the body of the alcohol, thus denying the brain the energy it needs to function properly.

Liver disorders associated with heavy alcohol use are:

Fatty liver gets its name from the deposits of fat that build up in normal liver cells. It is caused by the decreased breakdown of fatty acids by the liver and occurs when 30 to 50 percent or more of the drinker's dietary calories consist of alcohol. Acute fatty liver is reversible if alcohol use is stopped.

Alcoholic hepatitis often follows a severe or prolonged bout of heavy drinking. The liver becomes inflamed, damaging many liver cells, and metabolism is seriously disturbed. Symptoms include jaundice (yellowish color of the skin and whites of the eyes), weakness, loss of appetite, nausea, vomiting, low-grade fever, dark urine and mild weight loss. Alcoholic hepatitis is usually reversible with abstinence from alcohol. In some drinkers, it can be fatal or can become chronic. Alcoholic hepatitis precedes alcoholic cirrhosis in some cases.

Cirrhosis of the liver is a condition in which there is major destruction of liver cells and a build-up of scar tissue. One in ten long-term heavy drinkers will eventually develop cirrhosis of the liver, and because of the irreversible damage caused, a person with cirrhosis will most likely die within five years.

Heart Disease

Moderate drinking causes a significant rise in blood pressure. Heavy alcohol use is an important factor in causing high blood pressure and enlarged heart, which increase the risk of heart attack and stroke. As few as two drinks a day can lead to impaired muscle functioning of the heart.

Reproduction and Pregnancy

Effects of heavy alcohol use include missed menstrual periods in women and diminished libido and possible sterility in men.

A woman who drinks alcohol during pregnancy risks the health of her unborn child. Alcohol passes freely through the placenta, creating a level in the fetus almost identical to that in the mother. Babies whose mothers drink frequently or heavily during pregnancy may be born with serious birth defects. These defects are termed Fetal Alcohol Syndrome (FAS) or Fetal Alcohol Effects (FAE), which include babies affected by alcohol but without the full set of FAS characteristics. These characteristics are low birth weight, physical deformities, heart defects, joint and limb malformations and mental retardation. FAE complications include spontaneous abortion, stillbirth delivery, low birth weight, neurobehavioral abnormalities, mental retardation, cerebral palsy and learning disorders.

Treating Alcoholism

The sooner alcoholism is detected, the better the chances of recovery. There are several effective treatment methods for alcoholism, and what works for one person may not work for another. Many options should be explored when seeking help. Local or state health organizations can be contacted to find out what treatment exists in each community.

The important part of seeking treatment is the motivation and determination of the alcoholic to recover. It is also important for the family of the alcoholic to participate in treatment so they will better understand the alcoholic's problems and how family members also have been affected by alcohol.

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AMPHETAMINES

Classification:	**Stimulants**
Slang Names:	speed, ups, uppers, white crosses, dexies, bennies, black beauties, crystal and crank
Mode of use:	swallowed (capsule form), sniffed, injected
Dependence Potential:	psychologically addictive

What are Amphetamines?

Amphetamines are synthetic psychoactive drugs that stimulate or increase the action of the central nervous system. They are available legally by prescription, and have been used medically to treat obesity, fatigue and depression. Today, medical use of amphetamines are limited to treating MBD (minimal brain dysfunction) in children and narcolepsy, a rare disorder in which an individual is overcome by sudden and uncontrollable attacks of deep sleep.

Amphetamines have become a popular "street drug." Legally produced amphetamines may be sold on the black market but quality and quantity of the drug may vary. Underground chemist have also developed a "look-alike" amphetamine that is being sold on the street. "Look-alikes" are drugs manufactured to look like real amphetamines and mimic their effects. They are sold on the street as "speed" or "uppers" and are expensive, even though they are a weak substitute for amphetamines. The drugs contain varying amounts of less potent stimulants such as caffeine, ephedrine and phenylpropanolamine - all legal substances that are usually found in over-the-counter diet pills and decongestants.

One the greatest dangers of "look-alikes" is that they are readily available and there is no way to know what you're really getting. There have been reports of users who have overdosed because they unknowingly purchased real amphetamines and took the same amount as they would take of the "look-alikes." Users of true amphetamines may also underestimate the potency of the "look-alike" drugs and take excessive amounts that can result in a toxic reaction.

Short-term Effects of Amphetamine Use

The effects of any drug depend on the amount taken, the past drug experience of the user, circumstances in which the drug is taken (the place, feelings, activities, and other people involved) and the mode in which the drug is taken.

At low doses, amphetamines reduce appetite, increase breathing and heart rate, raise blood pressure, and dilate the pupils. Moderate doses can cause a dry mouth, fever, sweating, headache, blurred vision, dizziness, diarrhea, constipation and loss of appetite. High doses of amphetamines may cause flushing, pallor (become pale), very rapid and irregular heart beat, tremors, loss of coordination or physical collapse. Injecting amphetamines creates a sudden increase in blood pressure that can cause death from stroke, very high fever, or heart failure.

In addition to the physical effects of amphetamines, users report feeling restless, anxious and moody. Increased doses intensify the effects and users may become excited, talkative and have a false sense of self-confidence or superiority. They may behave in a bizarre manner and some become aggressive and hostile.

Long-term Effects of Amphetamine Use

Prolong used of amphetamine can lead to malnutrition and vitamin deficiencies, skin disorders, ulcers, lack of sleep, weight loss and depression. Frequent use of large amounts can produce brain damage that results in speech and thought disturbance.

Users of large amounts of amphetamines over a long period of time can develop an amphetamine psychosis, a mental disorder very similar to paranoid schizophrenia. They hallucinate (see, hear and feel things that do not exits), experience delusions (irrational thoughts or beliefs) and become paranoid (feel as though people are out to get them). People in this state usually exhibit a bizarre - sometimes violent behavior. Symptoms usually disappear within a couple of weeks after drug use stops.

Amphetamines also have the potential to produce tolerance - meaning that increased amounts of the drug are needed to achieve the desired effects.

Withdrawal symptoms can also occur when the use of the drug is stopped abruptly. Users may experience fatigue; long, but disturbed, periods of sleep; irritability, intense hunger; and moderate to severe depression. The length and severity of the depression seems to be related to how much and how often the amphetamines were used.

The effects of amphetamines on the fetus during pregnancy have not been fully established. Experiments with animals suggest that use of this drug during pregnancy may produce adverse behavioral effects such as hyperexcitability in offspring. Babies born to amphetamine - abusing mothers may also experience withdrawal symptoms shortly after birth.

Signs and Symptoms of Amphetamine Use

Below are several signs that may indicate the use of amphetamines.

Dilated pupils
Dry mouth and nose
Bad breath
Frequent lip licking
Excessive activity, difficulty sitting still, lack of interest in food or sleep
Irritable, moody, nervous
Argumentative
Talkative

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BARBITURATES

Classification:	**Sedative Hypnotic**
Slang Names:	barbs, bluebirds, blues, tooies, downers, phennies, yellow jackets, blue devils, reds and rainbows
Method of use:	swallowed, injected
Dependence Potential:	physically and psychologically addictive

What are Barbiturates?

Barbiturates are a synthetic drug classified as a sedative hypnotic. Sedative hypnotics depress or slow down the body's functions. Often these drugs are referred to as tranquilizers, sleeping pills, or simply sedatives. Their effects range from reducing anxiety to inducing sleep, depending on the amount taken.

There are several medical uses for barbiturates, besides controlling anxiety and sleep disturbances. They are also used as a mild form of anesthesia and to control peptic ulcers, high blood pressure and epileptic seizures.

Barbiturates are also a popular "street" drug. Commonly abused barbiturates include amobarbital (Amytal), pentobarbital (Nembutal), and secobarbital (Seconal). These drugs account for approximately one-third of all reported drug-related deaths, including suicides and accidental drug poisonings. Accidental deaths may occur when a user takes one dose, becomes confused, and unintentionally takes an additional or larger dose.

Using barbiturates in conjunction with alcohol is especially dangerous; because alcohol is also a CNS (central nervous system) depressant, the effects are multiplied and the risk of death increases. Overdose deaths are more frequent when alcohol and barbiturates are mixed, whether accidentally or deliberately.

Physical Effects

The effects of barbiturates are much like the effects of alcohol. Small amounts produce calmness and relax muscles. Larger doses cause slurred speech, staggering, and poor judgement. High doses can cause unconsciousness and death. Effects of prescribed doses of short-acting barbiturates such as secobarbital generally last 4 - 6 hours while effects from phenobarbital, a longer-acting barbiturate will last from 8 - 12 hours.

When taken, barbiturates slow down CNS activities such as heartbeat, breathing, brain activities and reflexes. Because physical and mental responses are slowed down, it is dangerous for users to drive a car or operate machinery while under the influence of this drug. Other physical effects of barbiturates use include difficulty in breathing, lethargy, allergic reactions, nausea, and dizziness.

Psychological Effects

Barbiturates produce a feeling of euphoria, tranquility and temporary relief of anxiety. Regular and prolonged use of barbiturates induce tolerance—the need for higher doses of a drug to produce the desired effect. Physical and psychological dependence and withdrawal symptoms occur when use of the drug is abruptly stopped. Withdrawal symptoms range from restlessness, insomnia and anxiety to convulsions and death.

Because the drug can easily pass through the placenta, use of barbiturates during pregnancy may cause birth defects and behavioral problems in babies. Babies may be physically dependent on the drug at birth and experience withdrawal symptoms shortly after they are born. Their symptoms may include breathing problems, feeding difficulties, disturbed sleep, sweating, irritability, and fever.

Signs and Symptoms

The following signs and symptoms may indicate the use of barbiturates.

Symptoms of alcohol intoxication with no odor on the breath, however many users combine alcohol and barbiturates

Slurred speech, lethargic

Lack of facial expression or animation

Activities such as frequent visits to several physicians to obtain prescriptions to treat nervousness, insomnia, stress, or tension. Abusers may also visit numerous pharmacists to have the prescription filled

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CHILDREN OF ALCOHOLICS

In the Classroom

Children who grow up in alcoholic families are three to five times more likely to develop alcoholism, drug abuse, eating disorders or other addictive/compulsive behaviors than the rest of the population. It is estimated that there are 9 million children of alcoholics in schools throughout the United States. Sadly, only five to ten percent of all children of alcoholics in school receive any kind of help. The following story dramatizes the invisibility often associated with children of alcoholics: Jennie is eight years old and living in an alcoholic home. She's a quiet child and her teachers often overlook her. She seems to be very withdrawn and depressed, does not act out and has very few friends. Sometimes when you really watch Jennie, you will notice a glimpse of creativeness in her art or drama, something that shows she is unique. She seems to struggle around verbal and written skills. She generally stays alone on the playground, and sometimes the other children tease or pick on her. She never seems to get involved when they are picking on other children. When you look carefully, you notice her isolation. But most of all, she attracts no attention. Inside of Jennie is a constant feeling of rejection, hurt and anxiety. She feels unimportant, unloved. Jennie doesn't appear to be a problem to her school. Her survival role of a lost child makes her prone to other addictions, likely to have difficulty with ongoing relationships, and have a tendency to feel isolated and alone. Jennie may be a candidate for teenage suicide. Her high level of anxiety makes it difficult for her to learn since she has a hard time relaxing. She is determined to pass through life unnoticed, believing that this is the safest course to avoid violence, anger and rejection.

Each child is affected differently when growing up in an alcoholic family—depending on the age of the child at the onset of their parent's alcoholism, the child's sex, the frequency of drinking, violence in the home versus passivity and the child's perception of the alcoholism.

Children who live in alcoholic families generally have not matured emotionally, intellectually, or spiritually. The child may not receive proper physical care and unlike the rest of the population their age, the child must take care of him/herself.

Emotionally, alcoholic families don't allow the expression of feelings and so the stages of emotional development are not completed. There are no appropriate role models for the child. The child suffers intellectually because the alcoholic parent is not available. The child's reading level is shown to be congruent with the amount of reading that they see their parents doing or encouraging. In an alcoholic home, little time is spent on reading to a child. There is also a shortage of dialogue or discussions to challenge and help the child's intellectual growth. Spiritually there is no ongoing discipline to utilize rituals or discuss religion in the child's family because the central and most important focus is alcoholism.

Sharon Wegscheider-Cruse defined four specific roles adopted by children of alcoholics. They are: the Hero, the Scapegoat, the Lost Child and the Mascot. Usually a child will adopt one or a combination of roles. These roles help the child feel safe and in control. There is also an exaggerated and rigid identification for the child and it is difficult for them to act outside of the role. Hidden underneath, the child feels a constant sense of shame, guilt and crisis, but the child often avoids expressing any feelings.

It is important to understand that children of alcoholics do not choose their role in society but must accept their role as a means of survival. This is particularly evident during times of stress. The classroom is often an area of stress for children. They can be helped by providing a wider range of options to help them cope within their environment.

The Hero

The hero is the child who is always volunteering, is responsible, and feels a desire to be the best. They tend to be a leader, are controlling, rigid around other students, and have a need to help people and gain attention. In athletic competition, they exhibit poor sportsmanship because winning is so important. The hero may be obnoxious, and often referred to as a teacher's pet. This person needs structure and order. It is important to help this child know it's "okay" to make a mistake, to get less than 100%, or to not always get their needs met through attention and approval. Encourage them to allow others to be leaders. When giving this person a compliment, separate their behaviors, their achievements and their person. Let them know that you care about them no matter what they do. Help them share the conversation instead of monopolizing it. Don't always call upon them.

Scapegoat

The scapegoat is the one child of the alcoholic that is recognized frequently in the schools. They disturb classes, break rules, talk back, rarely do their schoolwork, are irresponsible, blaming, and are generally hostile and defiant. Scapegoats seem to develop a chemical dependency problem and are often referred to special education. In terms of behavior, this small group of children of alcoholics becomes the center of attention in the classroom and in the family. Through this behavior, the child gets attention and feels significant and powerful.

To help this child, it is important to set clear limits and help the child see that their choices are encouraging the consequences. It is essential that you consistently follow through with the promises that you make to this child. Help them understand that they are responsible for their behavior. Disengage yourself from their anger and frustration. Encourage them to take a leadership role. Be calm and clear with a sense of control whenever dealing with the defiance which is often manifested between the teacher and the scapegoat. Teachers often desire to rescue the scapegoat because they see the child hurting. It is important not to feel sorry for them. This gives the child more attention and enables them to continue deviant behavior. Don't let them get away with breaking rules. Work with them to increase their attention span which is generally low. When possible, don't get into an interchange with this child in front of other students, they thrive on the negative attention. One-to-one interaction is more effective. Most of all, recognize their behaviors that are responsible.

Lost Child

Like Jennie, a lost child is a child who has decided to not make waves. They are not very talkative. The lost child won't get an A or and F but will stay in the middle so as not to draw attention to themselves. The child seems to have a short attention span and can create a whole fantasy world during a time of stress. They usually can disconnect from their emotional world. They will not volunteer to answer questions in class, but will answer if called upon.

Dealing with this child is difficult since most of the educational systems are strapped with high ratios of 20 to 30 students to one teacher. This child of the alcoholic tends to get lost easily in big classes. To create options for the lost child, try to make contact one-to-one with them, find out who they are and what their interests are. Begin to treat them special. Understand that they have a creative side. Encourage them to work in small groups. Help them build relationships with other students in the classroom. Call upon them to answer questions. Prepare them to be leaders. Encourage them to get involved in extra-curricular activities. Notice whether they are active or not active. Listen intently to what life is like for them.

The Mascot

During time of stress in the classroom, the mascot becomes a class clown. They say things without raising their hands. The child tries to encourage laughter or look like a fool. The mascot has learned this survival role to diffuse stress and feels significant and powerful when they are able to make people laugh.

Set clear and specific limits with the mascot. Try not to get involved in the laughter of the students at the mascot's silly behavior. Encourage them to be leaders, to raise their hands and be responsible. Stroke them when they have been appropriately humorous. Help them be in positions of importance in your class or in the school. By listening intensively and being calm, you may encourage the child to seek help in a support group like Ala-Teen or a Student Assistance Program. Support groups like this encourage a child to talk about what it is like to live in an alcoholic home, help them begin to trust other students, express feelings, and understand their origin. They also help these children relate to peers and adults positively. When they learn that alcohol and drug abuse is a "disease" it decreases feelings of pain and sense of responsibility for the problems in their family. They feel less anxious and less burdened with life. With this awareness, their school performance should improve.

Conclusion

The teacher can help change the child of an alcoholic's view that they are sick and dysfunctional. The teacher can confirm that they are experiencing normal reactions to an extremely abnormal situation. The inconsistency, unpredictability, and lack of dependability which are common in an alcoholic home can make a child fearful, confused, anxious, and hypervigilent. Teachers can help these children have a normal childhood by encouraging them to use their imagination, to be creative, and to laugh and be playful. Act as a nurturing adult and encourage a trusting and supportive relationship in the classroom. This will create more options and challenge them to leave their old survival techniques and develop healthy, new attitudes.

Written for Florida Alcohol and Drug Abuse Association by Stephen Andrew and Penelope Reilly, MSN, RSAC of Day One.

COCAINE

Classification:	Stimulant
Slang Names:	caine, coke, snow, toot, white lady, nose candy, blow, lines, rails, rock
Methods of Use:	sniffing/snorting, inhalation, injection
Dependence Potential:	psychologically and physically addictive

What is Cocaine?

Cocaine is a short-acting, powerful, central nervous system (CNS) stimulant which comes from the South American coca bush. The cocaine (cocaine hydrochloride) most common in this country is a white crystalline powder extracted from the leaves of the coca. The illicit "street" drug is a mixture of this pure substance and adulterants (comprising 5 to 70 percent of the mixture) added to stretch the supply and to increase the seller's profit. Talc, flour, laxatives, sugar, local anesthetics, and other stimulants or powders are just a few of the additives that cocaine is "cut" with.

Users buy powdered cocaine in grams (1/28 ounce) or in fractions of a gram called "quarters" or "eighths." Often, cocaine is snorted through the nose using plastic straws or rolled-up dollar bills. Razor blades are used to crush any large rocks or particles of cocaine and to form "lines" to make snorting easier. Some users inject cocaine into a muscle or vein, or convert cocaine into a smokable form called freebase.

What is Freebase?

Freebase is a form of cocaine that is smoked. It is the result of a chemical process whereby "street cocaine" (cocaine hydrochloride) is converted to a pure base by removing the hydrochloride salt and many of the "cutting" agents. This process usually involves the use of ether, which is a highly flammable solvent. The end product, freebase, is not water soluble. Therefore, the only way to get it into the system is to smoke it.

What is Crack?

"Crack" is a light brown or beige pellet of ready-to-smoke freebase cocaine. It is formed when powdered cocaine is melted in a glass tube with water. When the liquid cools, it is mixed with baking soda and cold water and cut into small pieces which then harden. In some parts of the country, lumps of crack are called "rock" or "ready rock." In other areas, the drug is sold in 3-inch sticks with ridges that are referred to as "french fries" or "teeth." There are also reports that crack is being pressed into pills. Crack should not be confused with "rock cocaine" which is a cocaine hydrochloride product for intranasal snorting and is sold in California.

Crack is very addictive. Because it is smoked, high doses of cocaine reach the brain almost instantly, causing a dramatic high. This rapid "high" is followed by a profound "low" that leaves the user craving more. As a result, physical and psychological addiction can occur in as little as two weeks.

How Cocaine and Crack Affect the Body

Immediate Effects:

When cocaine is "snorted" the effects begin within a few minutes, peak within 15 to 20 minutes and disappear within a few hours. Low doses produce a short-lived euphoria and feelings of increased energy, alertness, self-esteem and sensory awareness. While artificially depleting the body's energy supply, cocaine also reduces the perceived need for food and sleep and can cause impulsive behavior and mood changes.

Smoking freebase produces a shorter more intense "high" (lasting from 2 to 3 minutes) because inhalation is the most direct and rapid way to get the drug to the brain. Because larger amounts are getting to the brain more quickly, smoking also increases the risks of using the drug. Such risks include: confusion, anxiety, slurred speech, and psychological problems.

When crack is smoked, an intense and rapid euphoria, commonly known as a "flash high," is produced. The cocaine molecules reach the brain in less than ten seconds. The three to five-minute high is followed by an unpleasant crash. The user feels irritable, agitated and has an intense craving for more cocaine. The craving is caused by a high concentration of the drug in the bloodstream. The initial high is never reached again and the subsequent lows keep getting lower. This cycle reinforces the craving.

Injecting cocaine produces an effect within 30 seconds, which peaks in 5 minutes and lasts about 30 minutes. Users who inject run the risk of getting hepatitis, AIDS and other infections from using unclean needles.

Long-term Effects

Heart- Cocaine and crack constrict the heart's blood vessels, making it work harder and faster to move blood through the body. In some users, this stress may trigger chest pain or a heart attack. The drug can also interfere with the signals controlling the heart's pumping action. When this happens, the organ beats so irregularly it may stop. Cocaine, in all forms, including crack, has been associated with sudden heart attacks in people under the age of 30, some of whom had used the drug for the first time.

Brain- Cocaine and crack can cause brain seizures, a disturbance in the brain's electrical signals, some of which regulate the heart and muscles controlling breathing. Studies show that over time, the brain appears to become more and more sensitive to cocaine. As a result, the threshold at which seizures occur is lowered. Repeated use of the drug without experiencing problems does not guarantee seizures will not occur. The next dose—used in the same amount and the same way—can produce a seizure that may cause the heart to quit beating or the muscles controlling breathing to stop working.

In addition, some users have suffered strokes after using cocaine—the increase in blood pressure caused by cocaine may rupture brain blood vessels.

Changed Behaviors of Cocaine and Crack Users

The obsessive, drug-seeking behavior of cocaine and crack users seems to be due to the drugs' overwhelming influence on what has been called the "reward center" in the brain. Cocaine appears to cause an intense stimulation of the center by allowing a brain chemical called dopamine to remain active longer than normal. This causes changes in brain activity and triggers an intense craving for more of the drug. The user may compulsively use cocaine or crack just to feel normal.

Violent, erratic, or paranoid behavior can sometimes accompany use of these drugs. This "cocaine psychosis," which can occur in all cocaine users, may appear more rapidly in those who smoke crack. Affected users can be anxious, believe they have superhuman powers, or become suspicious and paranoid to the point where they believe that their lives are in danger and react in bizarre or violent ways. Hallucinations are also common. Users may hear or see things that don't exist, or they may experience "coke bugs"—a sensation of imaginary insects crawling over the skin.

Other Effects of Cocaine and Crack Use

Suicidal tendencies
Dramatic mood swings
Chronic nose bleeds and runny nose
Chronic sore throat
Loss of friends and former values
Miscarriage/birth defects
Loss of interest and motivation
Miscarriage/birth defects
Loss of interest and motivation
Chronic nausea/vomiting
Chronic fatigue/exhaustion
Weight loss, resulting from a loss of appetite
Chronic sleep problems
Chronic headaches
Respiratory ailments
Vitamin deficiencies
Addiction
Death
Crime/arrests

Cocaine abusers often depend on other drugs, including alcohol, to help them sleep or to combat the jittery feeling that characterizes the cocaine high.

Signs and Symptoms of Cocaine Abusers

Dilated pupils
Dry mouth and nose, bad breath, frequent lip licking
Excessive activity—difficulty in sitting still
Lack of interest in food or sleep
Irritable, anxious, restless
Talkative but conversation lacks continuity
Runny nose, cold or chronic sinus/nasal problems or nosebleeds
Sudden drop in grades or work performance
Frequently in trouble or has accidents

Use or possession of paraphernalia including small spoons, razor blades, mirror, little bottles of white powder, plastic, glass or metal straws, glass pipes and miniature blow torches

Withdrawal Symptoms

People who stop using cocaine often experience irritability, nausea, agitation, sleep disorders, severe depression, muscle aches and an intense craving for the drug.

Treatment

The long-lasting craving for these drugs makes addiction hard to treat without assistance. The first step in treatment is detoxification, ridding the body of the drug. This is sometimes followed by medication, such as antidepressants, to help control the craving and treat the severe depression that occurs after cocaine or crack is withdrawn. Treatment programs also help the recovering user find other alternatives to curb the craving the drug. Often this help is through a combination of individual, group, and family counseling in addition to other techniques aimed at changing behavior.

The key to successful treatment is restructuring the addict's daily life. The cocaine-addicted client has several internal and external "triggers" that, if not avoided, can rekindle the hunger for cocaine. Internal triggers include boredom, stress, and the need for rewards. External triggers include extra money, familiar music, paraphernalia, and past relationships—anything that can remind them of life with cocaine. The goal of recovery programs is to improve self-image and promote healthy living without drugs. Supportive family members or close friends of the person in treatment can often help make recovery a success. Many recovering individuals also find strength and support in attending Cocaine Anonymous or Narcotics Anonymous, which are self-help support groups modeled after the Alcoholics Anonymous program. To achieve recovery, the cocaine abuser must begin anew and develop a lifestyle of healthy attitudes and activities.

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DESIGNER DRUGS

What are Designer Drugs?

Designer Drugs are variations of already federally controlled synthetic drugs which mimic the effect of the classical narcotics, stimulants, and hallucinogens. Black-market chemists can create new, untested, legal drugs by slightly altering the molecular structure. The term designer drug also refers to a "new drug" that appears on the street, such as "crack", and are forms of already existing drugs. (Kirsch, M.M.; Designer Drugs; Comp Care; 1986).

The number of potential synthetic analogues that can be made and distributed is extremely large. Synthetic analogues that are currently available through the black market are divided into three types: analogues of phencyclidine (PCP), analogues of fentanyl and meperidine (both synthetic narcotic analgesics) and analogues of amphetamine and methamphetamine (which have hallucinogenic and stimulant properties)

PCP Analogues ("Dust")

PCP first appeared in the 1960s but quickly gained a reputation because of its "bad trip" which often caused users to become aggressive and violent. In the late 1970s, PCP resurfaced in a smokeable form and became popular because it offered a cheap high that lasted sometimes for a full day.

PCP is a white powder that dissolves in water. It has been sold in the form of tablets, powder, and more frequently as a liquid for dipping cigarettes. In the past five years, a few "designer" PCP derivatives have surfaced, these include: TCP, PCE, PCPY, PCC and Ketamine. In 1986, a new drug called "Wack" was being sold in Dallas. The drug was being smoked and contained PCP, formaldehyde and a common roach spray. On the East Coast, Space Base, which is a mixture of "Crack" and PCP became popular. The combination of these drugs produced powerful mood changes and a loss of contact with reality.

In small doses, PCP users exhibit agitation and excitement; gross incoordination; blank stare; catatonic rigidity; inability to speak; rapid involuntary vibration of the eyeball; flushing; and profuse perspiration. In moderate doses - PCP causes: coma or stupor; vomiting; hypersalivation; shivering; and fever. In high doses - users experience prolonged coma; hypertension and convulsions.

When treating a PCP user, it is best to keep them in isolation. Outside stimulation can often cause paranoia, anxiety and violent behavior. If a patient suffers respiratory depression, convulsions and coma, it is necessary for them to be on a full life-support system in an intensive-care unit.

There appears to be a declining interest on the black market to design new forms of PCP because of its bad reputation. The manufacturers that are involved in the trade continually fear the risk of getting caught.

Fentanyl Analogues

Marketed as "China White," "Synthetic Heroin," "Mexican Brown," or "Persian White," this synthesized designer heroin is anywhere from several hundred to three thousand times stronger than morphine. It is contaminated with many impurities, is disguised and sold as heroin, cocaine or speed and has caused countless deaths over the years.

Fentanyl is a synthetic narcotic used in about 70% of all surgeries in the United States. Alpha-methyl fentanyl is a simple derivative of fentanyl and is the identifying substance in designer heroin. Its chemical structure is different from heroin and morphine, but it has identical pharmacological and toxicological effects. It is sold in powder form and often diluted with large amounts of powered sugar, baby laxative or antihistamines. Intravenous injection is the most common route of administration; however, smoking or snorting are increasing in popularity. Addiction potential is extremely high because repeated use produces tolerance and physiological dependence.

Fentanyl acts primarily on the central nervous system and the gastrointestinal tract. Users often exhibit euphoria, drowsiness, respiratory depression, constipation and muscle rigidity. The most acute of these is respiratory depression. Fentanyl produces a decrease in heart rate of up to 25% and a parallel blood drop of up to 20%. The effects of the fentanyl derivatives on the respiratory system are unknown. It can only be assumed the effects would be more intense due to its higher potency.

There are several withdrawal symptoms the user will experience during detoxification of the drug. These symptoms include: runny nose, tearing, sneezing, irritability, insomnia, loss of appetite, abdominal cramps, pain in the bones and muscles of the back, excessive sweating, nausea, tremor, increased heart rate and blood pressure, and diarrhea, all leading to weight loss and dehydration. There is also evidence that irreparable damage can be done to the brain's receptors from a single injection of either too much or too potent a designer heroin. Some experimental nondrug therapies for treating withdrawal symptoms have had positive results, and the user may find help and support at such organizations as Narcotics Anonymous. (M.M. Kirsch, 1986)

Meperidine Anologues

Meperidine (also know as Demerol) is a synthetic narcotic used to control severe pain. Two designer drugs, similar in structure to meperidine, that have appeared on the street are MPPP and PEPAP. These derivatives are much more potent than meperidine. MPTP has caused irreversible brain damage in several individuals and is manifested in a syndrome very similar to Parkinson's disease - a disease which kills nerve cells in a tiny area at the base of the brain responsible for motor movement and the production of dopamine - a neurotransmitter. Symptoms of Parkinson's disease include: rigidness, palsy, bent-over posture and difficulty speaking. MPPP, with its contaminant MPTP, is usually sold as heroin. On the street, it has been given names such as "synthetic heroin," "new heroin" and "synthetic demerol." It has been sold as an all-purpose "analgesic painkiller."

Meperidine analogues are usually sold as white powder and are administered intravenously - some, however, snort the drug. When injected, contaminated meperidine users reported feeling a severe burning in their veins. Other effects felt included: a metallic or medicinal taste in their mouth; jerking of limbs; tightness, stiffness, aching or freezing of muscles; lack of coordination; numbness of extremities; loss of facial hair; increased oiliness of skin; difficulty opening eyes and blurred vision; difficulty speaking and swallowing; drooling; a very spaced hallucinogenic high; and excessive sweating. Victims of MPTP poisoning suffered extreme symptoms - several of them literally froze up.

Treating victims of MPTP is difficult. Users who have been exposed to the toxin often do not exhibit symptoms of Parkinson's disease for several months or years, or they may not recognize the early stages of the disease. Doctors currently use L-dopa, a prescription drug, to temporarily treat Parkinsonism. The body chemically changes L-dopa into dopamine. In the future they hope to use MAO inhibitors (MAO catalyzes the oxidation of dopamine) to slow the progression of the disease.

Amphetamine and Methamphetamine Analogues

Amphetamines are a large group of synthetic drugs. They are classified as a central nervous system stimulant because of their euphoric effects. Methamphetamine was synthesized in 1919 and was found to have similar properties as amphetamines. Like other stimulants, methamphetamine produces euphoria, relieves fatigue, suppresses appetite and reduces the need for sleep. The street names for methamphetamine include "Crystal," "Crank," or, more commonly, "speed." These drugs are popular because they are cheap and have a lasting effect. A designer crystal has appeared recently called "Glass" because it resembles tiny chunks of translucent glass. Some believe glass is a freebased (smokeable) form of crystal but black marketers say it is just a new way of producing crystal.

When taken intravenously, the effects of crystal are felt instantaneously. The methamphetamine high lasts an average of four to six hours. The users quickly build a tolerance to these drugs and must continually increase consumption to obtain the same effects. Therefore, addiction probability is high. Adverse reactions to these drugs depends on the user's sensitivity and tolerance. Headaches, dizziness, confusion, agitation, nausea, and muscle aches and pains are common complaints. As the user increases the dosage, bizarre behavior is manifested by paranoia, frequent mood changes. Psychosis is exhibited after prolonged chronic use of the drugs.

Another current methamphetamine analog that is extremely popular among college students and young professionals is MDMA a.k.a. "Ecstasy" a.k.a. "XTC" a.k.a "Adam." This new drug is considered the licit parent (and illicit daughter) of MDA (the "love drug") and methamphetamine (Kirsh, M.M; 1986). MDA is an amphetamine-like drug. It destroys the serotonin-producing neurons which play a direct role in regulating aggression, mood, sexual activity to pain. It is probably this action on the serotonin system which gives MDA its claim-to-fame of heightened sexual experiences, tranquility, and conviviality.

MDMA was first introduced as an appetite suppressant but was never manufactured because it gave users the heaves. It later became popular among psychotherapists because it was legal and was reported to make people trust one another and break down barriers between therapists and patients, lovers and family members.

In June 1985, the Drug Enforcement Agency banned MDMA and placed it as a Schedule I classification along with heroin, LSD, and cocaine. Schedule I drugs are generally dangerous narcotics that have a high potential for abuse and no medical usefulness.

MDMA is a white powder in its purest form. It tends to have a strong medicinal taste and is usually packaged in a clear gelatin capsule. It is rare to find MDMA in this form and also very expensive. MDMA has also been sold as a yellowish or white pill. It is usually cut (or diluted) with speed, caffeine, ephidine or other amphetamines.

In low doses, MDMA is a mild intoxicant. It is nonhallucinogenic and has few physical liabilities. Toxic effects become apparent in doses of 100 to 200 milligrams. When taken, the user experiences; an enhanced alertness and mental clarity; positive feelings and attitudes toward others and self; an increased ability to effectively work on problems and conflicts in lives and relationships; an increased emotional warmth and love; and a greater ease in accepting positive and negative expressions.

Adverse effects of using this drug include: muscle tightness; involuntary teeth clenching and biting inside of cheek; nausea and possible vomiting; dehydration; muscle aches and pains that persist for up to six weeks; restlessness; shaking in the jaw; swelling of the eyes and blurred vision; intermittent rapid eye movement; decreased sensitivity to physical pain; pulse and blood pressure fluctuation; sugar level fluctuation; and occasional visual hallucinations.

Other long term effects include: psychological difficulties including confusion, depression, sleep problems, drug craving, severe anxiety and paranoia and even psychotic episodes.

Because it is chemically structured like MDA and methamphetamine, many speculate about the neurotoxicity of MDMA. MDA has been shown to destroy serotonin-producing dopamine which leads to Parkinson's disease. Studies done on rats concluded that after treating them with multiple or single injections of MDMA - a greater depletion of serotonin occurs after repeated doses.

Currently, some researchers, psychologists, psychiatrists and lawyers are contesting the issue of whether the DEA prematurely scheduled a drug that presumably had some therapeutic value. They feel that the medical profession, not the government, should decide what is or is not accepted medical practice. They would like MDMA to be put on a Schedule III classification which is less restrictive and would allow medical use and research to be done.

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DUI - Driving Under the Influence

Driving under the influence (DUI) of alcohol or other substances is a dangerous game. On any given weekend night, one out of every ten drivers is legally drink: only one out of every 2,000 will be arrested. According to the National Highway Traffic Safety administration, 51 percent of all fatal accidents are alcohol-related. NSTSA also estimates that two out of every five people in the U.S. will be in an alcohol-related crash in their lifetime.

In Florida, 1.560 people lost their lives last year to drinking and driving. On these, 269 were under the age of 21. In 1987, there were 64,260 arrested for driving under the influence, of which 562 were juveniles.

When consumed, alcohol acts a depressant on the central nervous system. Alcohol is almost immediately absorbed into the bloodstream. It takes approximately 30 seconds for the first amount of alcohol to reach the brain resulting in slower reflexes, lack of coordination, poor vision, reduces concentration, and poor judgement.

The amount of alcohol in the blood is called the blood alcohol content (BAC). The amount of alcohol in the body can be measured by using a breath, urine, or blood test. This amount is measured as a percentage - how many parts of alcohol to how many parts of blood.

For a person weighing 120-14- pounds, three drinks within a two hour period will produce a BAC of .05 percent. At this time, driving ability will be serious impaired. Four to five drinks within two hours will put a drinker at the legally intoxicated limit with a BAC of .10 percent. At this time, a drinker will experience blurred vision, slurred speech, poor muscle coordination, and a lack of rational judgement. If no more alcohol is consumed, it will take approximately three hours for the BAC to drop less than ,05 percent. The risk of a person with a BAC of .10 percent having an accident is twelve times higher than for a person had not been drinking.

Eliminating alcohol from the body is a long process. About 90 percent must be metabolized through the liver. The other 10 percent is eliminate through the lungs (breathing) and urine. Nothing can speed up this process. "remedies" like cold showers, fresh air, drinking coffee, and exercising to sweat out the alcohol have no effect on the blood alcohol content. Time is the only cure for someone who has had too much to drink.

It takes approximately one hour to eliminate 1/2 ounce of alcohol. This is the amount of alcohol in one 12-ounce can of beer, one 5-ounce glass of wine, or 1 1/2 ounces of 80-proof whiskey. Thus, beer=wine=liquor. It does not matter what you drinks - but how much alcohol is consumed!

Teens, Drinking and Driving

Motor vehicle accidents are the number one killer of teenagers, taking nearly 10,000 lives annually. Alcohol is a factor in about half of all serious car accidents involving youth.

The high incidence of speeding among teens, the danger of driving at night, and the low percentage of seat belt use among teens are other factors the contribute to teenagers and the risk of accidents.

Drinking, Driving and the Law

Under Florida law, DUI, (Driving Under the Influence) is an offense evidenced by impairment or normal faculties or an unlawful blood level of .10 percent or above. The following are the current possible penalties for a first time offense:

A fine of $250.00 to $500.00 for BAC of .10 percent. If the BAC is .20 percent or higher, the fine is $500.00 to $1,000.00

Mandatory 50 hours of community service

Imprisonment of up to six months

Driver's license revoked for a minimum of six months, maximum of one year

Mandatory completion if DUI school;

Monthly probation for up to a year

If there have been property damage, personal injury, or death, a first offender faces a fine between $1,000 and $10,000 or a prison term of one to 15 years.

Dui penalties for a first offense in there countries vary from having the convicted driver's name published in the newspaper in Australia, one year at hard labor in Sweden and Finland, or to death by a firing squad on El salvadore.

Other Drugs and Driving

Alcohol is not the only drug that affects driving ability. Any substance that changes one's feelings, perceptions, and behavior affects judgement behind the wheel.

Marijuana created the illusion that senses are sharper: however, a person's sense of time an space is altered, making it difficult to judge distance and speed. Even hours after the high is gone, a marijuana user can experience difficulty dealing with sudden or unexpected events.

Hallucinogens. LSD, PCP, or other hallucinogens can make a driver hear, see, smell and feel things that do not exist. The driver will concentrate on the hallucinogens instead of the road. Hallucinogens may cause the driver to panic and lose control of the car.

Inhalants such as glue, paint, solvents, aerosols and other products with fumes can cause the same mind changes as other hallucinogenic drugs, with the same consequences for driving,

Stimulants, like cocaine and speed increase physical energy and mental activity, making it hard to sit still or concentrate. Users of stimulates may experience nervousness, dizziness, and visual problems.s They may experience fatigue and depression when the high is gone. Stimulates can lead a driver to overestimate his abilities, which can cause him or her to take unnecessary chances on the road.

Sedatives numb the central nervous system causing muscle relaxation and drowsiness. A driver using sedatives lacks muscle coordination and the ability to make rational judgements.

Over-the-Counter- Drugs, such as antihistamine and other medicines for treating colds, have the same effects as sedatives, clouding judgement, and causing the driver to feel drowsy.

Mixing alcohol with other drugs can be deadly because the effects of each drug can be multiplied, leading to come or death.

Preventing DUI

MIllions have suffered because of the carelessness of drunken drivers. Arresting drunk drivers is only part of the solution.. Tougher DUI laws need to be established and enforced. Educating the public on the dangers of alcohol and drugs and the consequences of driving the influence is imperative.

It is ultimately the responsibilities of each of us to keep impaired drivers off the road. If you know someone who has had too much to drink - don't let him or her get behind the wheel. Take the car keys, find that person another ride, or wait until they have sobered up enough to drive. If a drinking driver refused your help, do not get in the car yourself and be sure to keep anyone also from accepting a ride. These may seem like impossible tasks, but you may be saving lives: those of the drinker, their passengers, and innocent victims.

Help make our roads safe - learn how alcohol and drugs affect driving ability, and use that knowledge to protect yourself and those around you.

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EATING DISORDERS

We all worry about food, overeat at holidays, or skip a meal. However, people with eating disorders do more than worry—they live in constant fear of food and fat, often struggling to hide eating patterns they can't control. Obesity, bulimia and anorexia have become epidemic. In our culture this comes as no surprise where "thin is in" and we spend billions of dollars on diets.

In a recent survey of teens across America, 57% were found to be unhappy with their weight—90% wanted to lose weight and 18% wanted to gain weight. It is among this 57% of teens that eating disorders are most likely to occur.

If you are concerned about an eating disorder in yourself, a family member, or a friend, you do not have to feel alone or ashamed. Eating disorders are common and they can be treated.

Ending the Secrecy

People try to hide an eating disorder, often by "binging," binge and purging, or starving. "Binging" means out of control eating—often thousands of calories at a time—sometimes with, sometimes without pleasure. Eating disorders are divided into three groups, Obesity, Bulimia, and Anorexia Nervosa, and are defined by the measures taken to control weight.

Obesity, a medical problem in its own right, can result from binging and poor nutritional choice. People with bulimia binge and then purge (get rid of food, often by vomiting, taking laxatives, or excessive exercise). People with anorexia simply starve themselves.

Ending the secrecy is the first step to recovering from any eating disorder.

Obesity

Obesity is categorized into three areas: mild, moderate, and severe. Determination is based on height, weight, and body fat. People with mild to moderate obesity frequently report a history of being able to eat and not gain weight. Suddenly they find themselves exercising less, eating more, binging regularly and noticing their body fat rising steadily. Most people can lose weight safely and stop binging if they commit their time and energy to a behavior change plan. It is always recommended that one speak with a specialist before radically changing one's diet.

People with severe obesity have usually been overweight all their lives. Treatment involves medical health care and must begin immediately! Symptoms of obesity include:

high blood pressure and high cholesterol levels;
shortness of breath after mild exertion;

an obese eating style—eating large bites, fast, and without pleasure;

constant failed attempts at dieting;

guilt after binging and anger when confronted by others about eating;

limited social activities from too much weight and too little self-worth.

Bulimia

People with bulimia tend to be slightly overweight, underweight, or within normal weight range for their height and body frame size. They most often report a history of dieting along with fluctuations in their weight. The mild starvation caused by chronic low-calorie dieting seems to set off a binge-purge cycle. Bulimics binge and then purge by self-induced vomiting, abusing laxatives or taking diuretics (drugs that cause urination). After purging episodes, bulimics often fast or diet and frequently abuse exercise as a method of weight management. Some experts believe as many as 10% of adolescent females are bulimic.

Symptoms of bulimia include:

binging and purging from once a week to five times a day;

extreme fear of gaining 1-5 pounds;

distorted body image (seeing and feeling "fatter" than you are);

dry skin and dry brittle hair;

swollen glands under the jaw from vomiting ("chipmunk cheeks" making your face look fat);

depression, guilt, fear and mood swings;

fatigue and cold sweats from fast changes in blood-sugar levels.

The health risks of bulimia are created by mild starvation from dieting and damage to the digestive system from binging and purging. The risks include:

electrolyte imbalance leading to irregular heart beat, heart failure and kidney damage

laxative dependency (addiction)

throat damage

dental problems

stomach rupture

irregular menstruation

Most bulimics cannot break the binge-purge cycle by themselves. It's a sign of strength and wisdom to seek professional care. Treatment may include counseling, medication or both.

Anorexia Nervosa

Some anorexics start out chubby and then, responding to the pressure to be thin, start a restrictive diet. When friends admire their weight loss, they continue to starve themselves and lose weight. Other anorexics attempt to deter normal physical changes (development of thighs, breasts, hips) by restricting their caloric intake. This restriction stops physical development and the anorexic is able to avoid maturation.

There is an estimated 80,000 American women who are anorexic. These women are frequently described as bright, capable, and high-achieving. Because this disorder can be fatal (10% die of starvation or suicide), anorexics need professional care to recover. Parents often have to encourage or even force an anorexic adolescent into treatment. Treatment usually includes hospitalization and counseling.

Symptoms of anorexia include:

wearing baggy, heavy clothes to hide their thinness;

loss of menstrual cycle;

dry, cold skin with downy hair on arms, legs, back, face or chest;

insomnia and hyperactivity;

distorted body image;

extreme, excessive, and rigid exercise routines;

extreme fear of gaining any weight;

strict food rules (such as no liquids at all or no eating without;

strict food rules (such as no liquids at all or no eating without exercise first);

slowed physical and social development

Additional health risks include:

heart failure

kidney failure

suicide

low protein stores (the body stores protein from muscles and organs to fuel basic body needs) digestive problems

electrolyte imbalance

Lifelong Recovery

It takes time to fully recover from an eating disorder. People may need two or three years to develop a new relationship with food, themselves, and others. During recovery it is important to avoid the pitfalls of relapse (falling back into old habits). One must learn to cope with minor "lapses" so they don't become full-fledged relapses. Successful recovery includes:

knowing your triggers, asking for help and having an emergency plan;

seeking support from family and friends;

seeking support from self-help groups and professional counselors;

engaging in healthy exercise;

practicing good nutrition.

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INHALANTS

Classification: None
Slang Names: Solvents, Glue, Laughing Gas, Whippitts, Gas, Nitrous, Blue Bottle, Liquid Incense, Room Deodorizer, Rush, Locker Room, Poppers, Snappers
Methods of Use: Inhale, sniff
Dependence Potential: Possible addiction

What are Inhalants?

Inhalants are breathable substances that produce psychoactive (mind-altering) vapors. These substances include: solvents (model airplane glue, nail polish remover, lighter and cleaner fluids, gasoline, typewriter correction fluid); aerosols (hair spray, paints, paint thinners, cookware coating agents); and anesthetics (halothane and nitrous oxide or "laughing gas"). These chemicals are not usually considered drugs because they were developed for other legitimate purposes, however they can be dangerous when purposefully and excessively inhaled.

Two other popular inhalants are amyl nitrate and butyl nitrate. Amyl nitrate is used for heart patients and diagnostic purposes because it dilates the blood vessels and makes the heart beat faster. It is a clear yellowish liquid that is sold in a cloth-covered, sealed, bulb. The bulbs emit a popping or snapping sound when broken; thus they are nicknamed "poppers" or "snappers." Before 1979, amyl nitrate was available without a prescription, but as reports of abuse increased, prescriptions were required. Now, many users have begun to abuse butyl-nitrate which is packaged in small bottles, often marked incense, and sold under a variety of names including "locker room" and "rush". The "high" from butyl nitrate lasts from a few seconds to several minutes. Immediate effects include flushed face, dizziness, decreased blood pressure followed by an increased heart rate and headache.

Patterns of Inhalant Use

Young teenagers are more likely to abuse inhalants, because chemicals used are inexpensive and readily available. Inhalants are mostly taken by groups of young people, usually beginning as part of a fad;, and are administered in any one of several methods:

Glues:
are commonly inhaled from a paper or plastic bag. Using the bag increases the intensity of the fumes but it also markedly increases the chances of suffocation;

Industrial solvents, cleaning solutions, and paint thinners:
are generally inhaled directly from the container or by sniffing a cloth or placing a cloth in the mouth;

Gasoline:
is usually inhaled directly from gas tanks;

Aerosols:
may be inhaled directly, but some users try to separate the contents by straining the gases through a cloth.

Inhalants in the Body

Chemical used for sniffing are all fat-soluble, organic substances that easily pass through the blood-barrier and are metabolized in the liver and kidneys. They produce effects that are similar to anesthetics, which act to slow down the body's functions. The "high" begins within minutes and lasts from 15 to 45 minutes. At low doses, users may feel slightly stimulated; at moderate amounts, they may feel less inhibited, less in control, light-headed and giddy; at high doses, a user can lose consciousness.

Short-Term Effects of Inhalant Use

Inhalant users may exhibit several adverse effects including:

- nausea
- ringing in the ears
- abnormal heart rhythm
- feeling and looking tired
- double vision
- irritation of the eyes
- lack of coordination
- muscle and joint aches
- vomiting
- sneezing
- nosebleeds
- coughing
- bad breath
- poor judgement
- chest pain
- loss of appetite

How strong these effects are depends largely on the experience and personality of the user, how much is inhaled, and the specific substance used.

Long-Term Effects of Inhalant Use

Extended use of inhalants can cause weight loss, fatigue and an electrolyte (salt) imbalance. Repeated use can permanently damage the nervous system, greatly reducing physical and mental abilities. Also, because inhalants are easily absorbed in the bloodstream and metabolized through the liver and kidneys, long-term sniffing can damage blood, bone marrow, the liver and the kidneys.

Deep breathing of vapors or extended use of inhalants during a short period of time may result in other serious effects such as losing self-control, violent behavior, unconsciousness or death. Sniffing highly concentrated amounts of solvents or aerosols can produce heart failure and instant death. High concentrations of inhalants can also cause death from suffocation by displacing the oxygen in the lungs. Inhalants can also depress the central nervous system so much that breathing slows down until it stops.

Tolerance - the need for higher and higher doses of the drug to produce the same effect - seems to develop quickly among inhalant users. As users mature, they may seek other substances such as marijuana, cocaine, and LSD, in order to achieve that high.

Recent studies also indicate that sniffing solvents during pregnancy can cause birth defects. Labeled as Fetal Solvent Syndrome, this condition exhibits such classic symptoms as a small head, deep-set eyes, small midface, disfigured nose and ears, and stubby fingertips.

The primary solvent responsible for these defects is toluene which is found in aerosol spray paints, gasoline and many other popular products.

Signs and Symptoms of Inhalant Use

Odor on breath and clothes
Runny nose, sneezing, watery eyes
Drowsiness
Poor muscle control

Presence of paraphernalia such as: bags or rags, discarded aerosol cans or whipped cream chargers (signs of nitrous oxide use) or small bottles (signs of butyl nitrate use)

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LSD

Classification:	**hallucinogen or psychedelic drug**
Slang Names:	acid, LSD-25, microdots, purple mikes, windowpane, blotter
Method of Use:	orally, injected (rare)
Dependence potential:	psychological dependence

Lysergic Acid Diethylamide, LSD, is a derivative from ergot, a fungus that grows on rye and other grains. It was discovered in 1938 and was used in the early 1950s for experimentation by doctors and therapists to treat individuals with mental disorders, alcoholism, epilepsy and terminal cancer. These experiments proved unsuccessful but the interest in LSD grew as reports of its alleged mystical effects peaked curiosity in many. In response to the growing use of LSD, legislators passed laws in the mid-1960s banning the manufacture and use of this drug. However, illegal laboratories and black market dealers were already producing the drug.

LSD is one of the most potent of all drugs because it is active in extremely small amounts. One dose is usually 50 to 300 micrograms which is equivalent to 0.00005 to 0.00003 grams. One ounce is able to supply approximately 300,000 doses. LSD is odorless, colorless and tasteless. It is sold on the street in tablets or capsules. In its liquid form it is placed in or on another substance and allowed to dry. These substances include sugar cubes, postage stamps, "microdots" - tiny balls of compacted powder, "windowpane" - small squares of gelatin sheets or cellophane and "blotter" - small squares of paper. When added to the gelatin sheets or blotter paper it is divided into small squares, with each representing a dose, then the LSD is licked off or swallowed.

LSD users are unlikely to take it while at school, work or home where they might be observed. Especially during the early stages of its use, these drugs are generally taken in a group situation under conditions that will enhance their effect such as at a party.

The Body's Reaction to LSD

LSD is quickly absorbed from the stomach and intestines and effects are felt within 30 to 40 minutes. The physical effects of LSD include dilated pupils, higher body temperature, increased heart rate and blood pressure, sweating, loss of appetite, sleeplessness, dry mouth and tremors.

Within an hour after ingestion of LSD, psychic effects occur which causes a distortion in sensory perception. All of the body's senses are affected by LSD, but vision is affected the most. The color and texture of things become more vivid and perception is increased. Psuedohallucinations - unreal images that the LSD user can distinguish as unreal - are common occurrences. Hallucinations - the user believes an imaginary vision is real-is uncommon at ordinary doses. Synesthia is also frequent among LSD users. Synesthia is the occurrence of one type of stimulation that triggers the sensation of another stimulation - such as hearing a sound that causes the visualization of a color. The sensory input to the

LSD user can become so distorted that they may "see" music or "hear" color. Other psychic effects experienced by users include a loss of body image, a loss of a sense of reality, a distorted sense of time, difficulty in concentrating and a short attention span. Users also develop an extreme preoccupation with philosophical ideas and may perceive that they can "solve the problems of the world."

LSD users can experience emotional changes while taking the drugs. They exhibit dramatic mood swings - often going from extreme happiness to deep depression. Minor events - such as the sun going behind a cloud - can trigger these mood swings. Users may also laugh at times of sadness or cry during happy occasions.

Tolerance - the need for increased amounts of the drug to produce the same effect-occurs quickly with the continued use of LSD but disappears quickly when use is stopped. Cross-tolerance - the developed tolerance to one drug due to the use of another drug within its pharmacological class - occurs with the use of other hallucinogens such as mescaline (from the peyote cactus) and psilocybin (from certain mushrooms).

Flashbacks - in which the person spontaneously experiences a drugs effects without taking the drug-can occur without warning for up to a year or longer after the use of LSD. Flashbacks are most likely to occur among frequent users rather than those who seldom used the drug and the longer the time since the use of LSD the less likely the chances of experiencing one. Flashbacks can occur at any time or place and may be initiated by stress or the use or other drugs. The reason flashbacks occur are unknown but it is thought that they may represent behavior learned under the influence of LSD or may be the result of unresolved emotional-psychological conflicts which arose during a "trip."

What is a "Bad Trip"

Acute panic reactions can also occur with the use of LSD. This reaction results in what is referred to as a "bad trip" and the user feels as if they are in extreme danger. These scary sensations may last a few minutes or several hours. The user may experience confusion, anxiety, panic, suspiciousness, a feeling of helplessness and a loss of control. Sometimes, LSD and other hallucinogens can unmask mental or emotional problems that were previously unknown to the user. If the panic reactions become intense, a drug-induced psychosis can occur. This psychosis may be brief or it may last for several years and is almost impossible to predict when, where, or to whom a reaction will occur.

A "bad trip" is generally a confusing and frightening state that will pass in time. When someone is experiencing a panic reaction, do not leave them alone. Remain calm, because they are extremely sensitive to the mood of those around them and may become more fearful if they see others panicking. Try to create a calm atmosphere by turning off bright lights and keeping the room quiet. Reassure the person that what they are experiencing is the result of a drug and the feelings will pass. Talk to them about nonthreatening things such as a pleasant memory or distract them with visual toys or calming music anything that will get their mind out of the panic state. This will help draw the user out of the frightening experience and into a familiar place. Panic reactions can usually be handled by a calm and rational person but if the user becomes uncontrollable, it is best to seek medical or professional help.

LSD and Driving

There are numerous reasons why the combination of LSD and driving are dangerous. The drugged driver's vision is distorted and they may see imaginary objects in the road swerve to miss them, and lose control of the car. Or, a real image may be so distorted that the driver thinks it is an illusion and will not attempt to avoid it - therefore causing an accident. Whatever the case, LSD causes the user to distrust their senses and could result in a serious injury or death.

Signs and Symptoms of LSD Use

The following signs and symptoms are common among LSD users:

Extremely dilated pupils
Warm skin, excessive perspiration and body odor
Distorted sense of sight, hearing and touch
Distorted sense of time, self and place

Mood and behavior changes, the extent depending on emotional state of the user and environmental conditions

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MARIJUANA

Classification:	Depressant, Hallucinogen
Slang Names:	Dope, weel, herb, grass, pot, hashish, hash
Method of Use:	Smoking, eating, and intravenous injection
Dependence Potential:	Psychologically addictive

What is Marijuana?

Marijuana is the common name for a crude drug made from the plant Cannabis Sativa. The main mind-altering (psychoactive) ingredient in marijuana is THC (delta-9-tetrahydrocannabinol). More than 400 other chemicals also are in the plant. A marijuana cigarette or "joint" is made from the dried particles of the plant. The amount of THC in the marijuana determines how strong its effects. Marijuana available today is as much as ten times more potent than marijuana used in the early 1970s.

What is Hashish?

Hashish is a concentrated form of marijuana made by taking resin from the leaves and flowers of the marijuana plant and pressing them into cakes or slabs. Hash is mostly smoked in a pipe rather than rolled into a cigarette. It is usually stronger than crude marijuana because it contains five to ten times as much THC. Hash oil may contain up to 50 percent THC.

Marijuana in the Body

When marijuana is smoked, it travels down the windpipe and into the lungs. Once in the lungs, the smoke passes through the bronchi and into the alveoli (air sacs) where the THC passes into the bloodstream. THC is then absorbed by most tissues and organs in the body, especially fat cells and organs such as the brain. The "high" reaches its peak in approximately 10-30 minutes and will last from two to eight hours, depending on the amount of marijuana used.

It takes a week to one month for all the chemicals from one marijuana cigarette to leave the body. As more marijuana is smoked, THC accumulates in the cells and the body is never drug free. When chronic users stop using marijuana, it takes about three months for the accumulation of THC to leave the body.

When marijuana is eaten, it enters the stomach and is broken down for digestion by enzymes. At this time, THC passes into the bloodstream. Smoking marijuana puts 5-10 times more THC into the body than eating it.

Signs and Symptoms of Marijuana Use

Loud talking and bursts of laughter in early stages of intoxication
Drowsiness or stupor in later stages of intoxication
Forgetfulness in conversation
Chronic redness of the eye
Odor similar to burning rope on clothing or breath
Decrease in school or work performance; truancy
Neglect of personal hygiene
Change of friends
Paranoia, defensiveness, secretiveness, self-centeredness
Depression
Mood swings
A motivational syndrome
Distorted sense of time

Use or possession of paraphernalia such as cigarette rolling papers, "roach" clips (used to hold the cigarette), and pipes or a "bong" (a water pipe for cooling smoke so the user can inhale more)

Immediate Effects of Marijuana

Immediate physical effects of marijuana are elevated heart and pulse rates, bloodshot eyes, and a dry mouth and throat.

Marijuana impairs or reduces short-term memory, alters one's sense of time, and reduces the ability to do things which require concentration, swift reactions, and coordination. Experiments have shown that marijuana affects a wide range of skills needed for safe driving. These skills are impaired for a least 4-6 hours after smoking a single marijuana cigarette, long after the "high" is gone. Thinking and reflexes are slowed, making it hard for an impaired driver to respond to sudden, unexpected events. A driver's ability to steer properly, brake quickly, and maintain speed and proper distance between cars is affected, according to research.

Long-Term Effects of Marijuana

Marijuana and its potent chemical THC cause cell abnormalities, alter normal cell division, affect genetic make-up of new cells and lower cell immunity, increasing the possibility of viral infections among users.

THC causes enlargement of the area between nerve cells, resulting in poor transmission of nerve impulses between these cells. This "tampering" has several effects on the nervous system including:

Impaired speech
Difficulty in comprehending complex ideas
Loss of memory

Difficulty in concentrating or focusing on one subject
Irregular sleep habits; insomnia
Mood swings
Lack of body coordination
Decrease in muscle strength
Blurred vision and impaired visual perception

Marijuana is harmful to the entire respiratory system from the sinus cavities to the air sacs within the lungs. Marijuana smoke is more harmful than tobacco smoke, and users have a much higher incidence of respiratory disease than nonusers. Other respiratory problems associated with marijuana use are:

Sinusitis - an inflammation of the lining of the sinuses, which is a result of smoke irritation to the nostrils.

Bronchitis - an inflammation of the bronchial tubes which take air from the windpipe to the lungs. Chronic marijuana users often cough up yellowish-green mucus which may be tinged with blood.

Lung cancer - marijuana smoke contains more cancer-causing chemicals than tobacco smoke. Smoking three to five marijuana "joints" a week is equivalent to smoking 16 cigarettes every day.

Smoking one marijuana cigarette has the immediate effect of increasing heart rate and blood pressure as much as 50 percent. Marijuana increases the amount of toxic carbon monoxide in the blood, thereby reducing the amount of oxygen which reaches the heart. Increased blood pressure and changes in the blood vessels are reflected by the typical red or bloodshot eyes of the marijuana user.

Chest pains have been attributed to marijuana use. People who suffer from angina, high blood pressure, diabetes, or other heart problems take an even greater risk smoking marijuana.

Marijuana can have far-reaching effects on the reproductive systems of both males and females.

Effects on males:

Decreased masculinity. Use of marijuana results in lowered levels of the male hormone testosterone. This hormone is essential for the development and support of male secondary sexual characteristics such as hair growth, voice tone, and muscle distribution.

Impotency. Male users of marijuana may experience an inability to function sexually.

Infertility. Moderate to heavy marijuana use, especially among 12 to 17 year-olds, can result in decreased or zero sperm production. Studies indicate increased production of abnormal sperm among users, which can result in birth defects in offspring.

Effects on females:

Decreased femininity. Marijuana use by females increase the amount of testosterone in the body, causing an increase in acne and such male characteristics as body and facial hair, and flattening of the breast and buttocks.

Infertility. Use of marijuana may interrupt the menstrual cycle and interfere with reproductive health and fertility. THC can cause irreversible damage to the supply of eggs from the ovaries.

Pregnancy complications. Research suggests that using marijuana during pregnancy may result in premature births, low-birth weights, birth defects and an increased infant mortality rate. Nursing mothers can transfer THC to their babies through their breast milk.

Other Effects of Marijuana

Chronic use of marijuana acts as an escape from stress, allowing the user to block out pain, frustration or confusion. However, as the user repeatedly uses marijuana to escape, he becomes less and less able to cope with everyday challenges. This behavior is known as the amotivational syndrome. Chronic users lose interest in achieving goals and instead become moody, easily fatigued, depressed, and experience difficulty in coping with stressful or complex situations.

Similar to the amotivational syndrome, burnout is the effect of prolonged marijuana use. Heavy users become dull and inattentive and sometimes unaware of their surroundings. They often do not respond when spoken to and do not realize they have a problem.

A common negative reaction to marijuana is the "acute panic anxiety reaction." People describe this an extreme fear of "losing control," which causes panic. Symptoms usually disappear within five to eight hours.

Gateway Drug

Marijuana is considered to be a gateway drug. This means marijuana users tend to move on to more harmful drugs such as cocaine, heroin or LSD. Evidence shows that 60 percent of marijuana users go on to use harder drugs while the odds against non-users trying other substances are 98 to 1. A survey of heavy marijuana users showed that 74 percent have also used cocaine. However, there is no conclusive evidence that marijuana causes the use of more potent substances.

When marijuana is combined with other drugs such as alcohol, the effects of each are compounded and become several times more harmful.

While marijuana may not be physically addictive, regular users can develop a psychological dependence. Those who are psychologically dependent have difficulty limiting their use of the drug and can experience side effects such as insomnia and irritability when denied access to marijuana.

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NUTRITION

Helping the High-risk Teen

Nutrition plays an important role in how well our children learn, concentrate, get along with others and play. Energy levels and moods vary with the types of food we eat, and this is especially true for adolescents. The physical changes that occur during this period of rapid growth increase nutrient needs at a time when many teens are skipping meals, snacking, eating away from home and sometimes relying on unconventional diets.

For the high-risk adolescent, the teen on his or her own or from a dysfunctional family, or one who is exhibiting delinquent behaviors, nutrition is especially important as a physical stabilizer: the more well-balanced the body, the easier it is to balance the behavior.

The adolescent's search for independence and identity, his desire for peer acceptance, and his preoccupation with physical appearance may affect eating habits, food choices and, consequently, nutrient intake. Recent research indicates that many foods and some food additives can cause clinical disorders like headaches, rashes, hyperactivity, asthma, depression and general irritability in many people. For example, 70% of people suffering from migraines who were studied at the National Hospital for Nervous Disorders in London were found to be allergic to certain foods. Elimination of these foods from their diets brought almost total relief from the migraines in only two weeks.

Behavior problems can also be contributed to the foods we eat. Food intolerances have been found to play a role in delinquency. Milk craving, for example, has been shown to result from an addictive allergy which leads to aggressive behavior. Knowing this, it is not surprising to discover that researchers have demonstrated that many juvenile delinquents consume up to six quarts of milk daily.

In research on children between three and 16 years of age who suffered from severe and frequent headaches, 93% stopped having headaches when they were put on a rotating, controlled nutritional plan.

Why Balance is Important

To stay healthy, our bodies need about 40 different nutrients every day. These nutrients work in combination with each other. Most foods contain some nutrients, but no single food insures that we don't get too much or too little of a particular nutrient. Too much can be as bad as too little, especially certain vitamins or minerals. Most of us have too much sugar, salt and fat in our diets, and this is particularly true of teens who often skip or miss meals, and frequently rely on snacks and fast foods.

It is estimated that 17% of the US teen population is at nutritional risk. Girls are often at risk because they require fewer calories to maintain weight and may lack proper nutrients in their diets. Boys tend to require more calories but may lack proper nutrients because of poor food choices. Nutrients most lacking in the adolescent diet are calcium and iron. Vitamins A, B-6, zinc, and magnesium are also often in short supply in the diets of adolescents.

As parents and caregivers, we have very little control over what our adolescents eat, especially the high-risk teen, even if they are at home at mealtime. But we can see that the right foods are available to our teens, and we can teach them how to make smart food choices form the Four Food Group Plan.

Basic 4 Foods Every Day

4 servings of fruits/vegetables
4 servings from the bread/cereal group
2 servings of protein (meat, fish, poultry, or beans)
4 servings of milk/dairy products

The meal adolescents most frequently eat is dinner or the evening meal. This is an opening to provide essential nutrition and to offer at least one close family activity. It's not a bad idea to make dinner together a household rule!

Balancing our diets takes care of more than our physical health. If we take the few extra minutes to prepare a wholesome meal and pull the family together, we've begun to take care of our family's need to interact and share. Thinking about what we eat also begins a wonderful habit of thinking about our overall well-being.

For the adolescent at risk, this family meal may not be a reality, but given some nutritional information, the adolescent at risk can take the lead and pull together other siblings for some semblance of a "family meal."

We can also exercise some control by creatively and wisely choosing the type of snacks we keep on hand. Nutritious snacks can make a beneficial contribution to the total nutrients often lacking in teens' diets. According to USDA survey data, snacks are responsible for an increased intake of calcium, magnesium, vitamin B-6 and iron.

Try Something Different

Cookies, hamburgers, pizza, and other things our adolescents love can stay on the table, but here are some new things, too. Feeding your family balanced meals doesn't mean spending more money on food or more time buying and preparing it. Balance means cutting down on fatty and sugary foods and offering more complex carbohydrates that give energy, not just empty calories.

Suggestions

Fresh foods are great, though they are seasonal and can be difficult to keep on hand. Buy lots of what is affordable and in season and freeze some. If you can't buy fresh fruits and vegetables, buy frozen ones. Canned foods are next best, though try to buy those with low salt and no added sugar.

What's good for snacks. Snacks like potato and taco chips, bagged cookies and granola bars are expensive and have lots of salt, sugar and fat. We can do better by buying nutritious snacks like raisins, unsalted sunflower seeds, celery sticks (great with peanut butter or other nut butters spread on them), nuts (plain and unsalted, not fancy mixes), dried fruit, carrots, and plain crackers. Pick up snacks like popcorn (easy on the butter and salt!), rice cakes, cheese, or sesame sticks...snacks offering variety and nutrition. The younger you start a child on healthy snacks, the better!

Frozen dinners, packaged lunch meat. Though they save time, frozen dinners are hard on the food budget. Packaged lunch meats are also expensive. Try buying a small ham or a turkey breast and slicing it up instead. Freeze leftovers to make another day's meal preparation faster and less expensive.

Protein means more than just meat. Beans are an excellent and inexpensive source of protein.

Spruce up simple foods like rice and pasta with onions, peppers, and other spices.

Closing Tip

independence is a goal of adolescence! Food is one area used to express this goal. The positive role model can help make this search for independence a rewarding experience by providing a wide variety of healthy foods. This can result in a "win" for both parents and adolescents: the adolescent exercises his right to select a diet, and the adult provides the foundation for making good choices!

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OPIATES

Classification:	**Narcotic**
Slang Names:	Heroin - dope, H, junk, scag, smack, brown sugar, Mexican mud, horse Codeine - Schoolboy Dilaudid - big D, D's, dillies, stuff, pills Morphine - dope, M, Miss Emma, mud, sister
Method of Use:	orally, injected, inhaled, smoked
Dependence Potential:	physically and psychologically addictive

What are Opiates?

Opiates are central nervous system depressants which are often used medically to relieve pain. They are from a resin taken from poppy plants found in countries throughout the world, including Mexico, Turkey, India, China, Burma and Yugoslavia. This resin can be converted into opium, heroin, codeine and morphine. Other opiates such as meperidine (Demerol), Darvon, Percodan, Dilaudid, Talwin and Methadone are synthesized or manufactured by modifying the chemicals found in opium.

Opiates have a high potential for abuse and are found in a variety of forms including: powders, liquids, tablets, syrups, and prescription from a physician such as morphine, codeine and dilaudid. These drugs are used to relieve pain, cough and diarrhea. Other opiates are popular "street" drugs such as heroin—the most potent and commonly abused opiate.

Opiates are usually taken orally except in the case of heroin which is in powder form. Heroin users generally begin sniffing the drug and then gradually advance to injecting it. The powder is dissolved in water and heated in order to reduce it to a liquid form. The user then injects the substance either subcutaneously or intravenously. Subcutaneous injection ("skin popping") is when heroin solution is injected into the layers of skin—usually in the arms or thighs. Intravenous injection ("mainlining") is when the heroin is injected into a vein. When injecting, the effects of heroin are felt within minutes and last between three to four hours—depending on the dosage.

Street heroin can be a white or brownish powder and is usually diluted or "cut" with other substances such as sugar, powdered milk or quinine in order to increase the bulk amount sold to the user.

Psychological Effects of Opiates

Like other depressants, opiates produce a tranquil and euphoric effect. Users who inject an opiate such as heroin may also experience a "rush" as the drug circulates through their system. Some users combine opiates with a stimulant such as cocaine. This is called "speedballing." The stimulant is supposed to keep the user from falling asleep from the effects of the opiate, and the opiate is supposed to reduce the hyperactive effects often caused by stimulants.

Psychological dependence is probable with continued use of opiates. When someone becomes dependent, finding and using the drug become their main focus. Opiates also induce tolerance—the need for more of the drug in order to produce the same effects.

Physical Effects of Opiate Use

The physical effects of opiates depend on the opiate used, its source, the dose and the method in which it is used.

Opiates slow down breathing, heart rate and brain activity and depress areas of the brain which control appetite, thirst and sexual desire. The body's tolerance to pain is also increased.

The dangers of opiates are generally caused by using too much of the drug, contamination of the drug, combining several drugs, or using unsterile needles when injecting the drug. Use of unsterile needles can lead to hepatitis, tetanus or AIDS.

Regular opiate users who abruptly stop using the drug will experience withdrawal symptoms that usually begin 4-6 hours after the last dose. Symptoms include uneasiness, diarrhea, abdominal cramps, chills, sweating, nausea, runny nose and eyes, irritability, weakness, tremors and insomnia. The intensity of these symptoms depends on how much of the drug was taken, how often and for how long. These symptoms are usually strongest 24-72 hours after they begin and can persist for 7-10 days. Sometimes sleeplessness and craving for the drug can last for several months.

Opiates are also harmful to a developing fetus. Pregnant women who are dependent on opiates have a higher risk for spontaneous abortions, breech deliveries, premature births and stillbirths. Babies born to opiate-addicted mothers often have withdrawal symptoms similar to adults. These symptoms may last several weeks or months. Researchers have also found an increased risk of Sudden Infant Death Syndrome (SIDS) among babies born to heroin-addicted mothers.

Treating Opiate Addiction

The following are basic approaches to treating opiate addiction:

Detoxification - supervised withdrawal from the drug in a hospital or on an outpatient basis

Therapeutic Community - patients live in a highly structured, drug-free environment

Outpatient Drug-free Programs - which emphasize various forms of counseling such as group or individual

Methadone Maintenance - patients receive methadone daily as substitute for heroin. Methadone is taken orally and is active for more than 24 hours. (The effects of heroin usually last four to six hours.) Methadone does not produce the same high as heroin; however, it does prevent craving for the drug and withdrawal symptoms, thus allowing the patient to concentrate on recovering.

Naltrexone - is a nonaddicting, long-acting adjunctive medication that is used to maintain abstinence in patients detoxified from opiates. It blocks the euphoric effects of opiods, thus preventing the redevelopment of opiod dependency. Recently, researchers have found that combining clonidine, a drug used to treat high blood pressure, with naltrexone, may help the patient tolerate withdrawal symptoms while on naltrexone. Usually, patients suffer from withdrawal symptoms for 2-4 weeks. Patients treated with the clonidine/naltrexone combination experience acute symptoms for only the first half day of treatment.

LAAM (L-Alpha-Acetyl-Methadol) - is often called "long-acting methadone" because its effects last two to three days between oral doses. The development of LAAM began in the 1970s, but its manufacture was blocked by legal, political and economic problems. Today, LAAM is considered an "orphan" drug and awaits sponsorship by a pharmaceutical company for production.

Signs and Symptoms of Opiate Use

The following are signs and symptoms often associated with opiate use:

Lethargy, drowsiness
Constricted pupils and reduced vision
Shallow breathing
Needle or track marks on inner arms or other parts of the body from injecting needles
Redness and raw nostrils from sniffing heroin
Excessive perspiration, shaking, vomiting, chills or other withdrawal symptoms
Use or possession of paraphernalia including syringes, bent spoons, bottle caps, eye droppers, rubber tubing, cotton and needles

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PCP

Classification:	**Hallucinogen; Anesthetic**
Slang Names:	**Angel Dust, Killer Weed, supergrass, crystal, cyclone, elephant tranquilizer, hog, embalming fluid, KJ, peace pill, PeaCe Pill**
Method of Use:	**swallowed, smoked, sniffed, injected**
Dependence Potential	**psychologically addictive and may be physically addictive**

What is PCP?

PCP (Phencyclidine) is a synthetic drug that was first developed as an anesthetic agent for surgery in the 1950s. It was soon taken off the market for human use because of its unwanted side effects. Today, its only legal use is in veterinary medicine.

PCP is notorious for its variety of effects - acting at times as a simulant, depressant or hallucinogen - and for its unpredictability. In spite of its bad reputation, PCP remains popular on the street. It is cheap, often masqueraded as other street drugs such as THC, the active ingredient in marijuana, and is easy to make. Many underground laboratories are producing the drug, selling it, and making an attractive profit. As a result, users can never be sure of what they are actually buying since it is manufactured illegally.

PCP comes in several different forms - in its original form as a white or yellowish-white powder, as a tablet, or as a capsule.

Different methods of use induce different effects. The most popular method of use is smoking marijuana, parsley, or tobacco sprinkled with PCP powder. Users find they can control the effects of PCP better this way. PCP can be taken orally by capsule or tablet and usually means getting larger doses of the drug. Snorting or injecting low doses of PCP produces a "rush" and enhances the anesthetic effects of the drug. Many users take PCP without knowing what they're taking, while others choose to use PCP regularly. PCP is a powerful drug, even in small doses, and as all psychoactive (mind-altering) drugs, effects may vary depending on the amount taken, how it is taken, and who's taking it.

The Effects of PCP Use

When taken orally, PCP produce a high that can last between 5 and 8 hours. When smoked or injected, effects can last any where from 3 to 5 hours. The high itself is hard to describe - users generally report a variety of physical and psychological effects. The drug seems to disassociate the user from reality - it feels as if the user is in a fantasy world - sometimes pleasant, sometimes not.

Physical effects of PCP in small doses causes sedation, numbness of the extremities, loss of muscle coordination, and dizziness. Users tend to have a blank stare or experience involuntary rapid eye movements accompanied by blurred or double vision. Users may also experience flushing, profuse sweating, nausea, vomiting and an increase in heart rate, blood pressure and breathing rate.

In larger doses, PCP's painkilling and anesthetic qualities are prevalent. There is a significant drop in blood pressure, breathing and heart rate. Users appear drunk because they are so uncoordinated. They may experience shivering, increased salivation, watery eyes, loss of balance, dizziness, muscular rigidity, and exhibit repetitive movements such as rocking back and forth. Their speech is often confused and their vision may be distorted. For the next few hours, thinking, remembering, and making decisions can be very difficult.

At high doses, PCP users become extremely agitated which is commonly followed by seizures or coma. The coma can last for a few days to several weeks. These symptoms mimic the agitation, delusions and mental confusion exhibited by individuals suffering from schizophrenia. Massive PCP overdoses can kill.

PCP users may experience "trips" that last from one to six hours. At the beginning of a PCP trip, users report feeling as if they are outside of their body. They have a distorted image of themselves and their surroundings. As the trip progresses, they begin to hallucinate, become confused and lose track of time and space. During this time, some users may become aggressive and violent while others may withdraw and have difficulty communicating. In the final stages, users may become depressed, irritable and alienated from their surroundings.

Other Dangers of PCP Use

More PCP users have died from accidents caused by the anesthetic qualities and the strange behavior associated with this drug than from the actual chemical effects of the drug.

Because PCP is an anesthetic, it deadens feelings in the extremities, making it almost impossible for users to feel any pain. Cuts, burns, bruises and broken bones go undetected until the drug has worn off. Therefore, users could die in a fire because PCP has made them insensitive to the burning. Or, they may bleed to death - never realizing they were even cut. There have been reports of PCP users falling off of roofs and out of windows because of the intoxicating effects - or users drowning because they were so disoriented that they did not know which way was up. Because PCP can produce violent behavior, users have been known to assault others or injure themselves-sometimes resulting in murder or suicide.

Long-term Effects of PCP Use

Prolonged users of PCP regularly experience disturbances in judgment, memory, concentration and perception even after they have stopped using the drug. They report speech problems as well as hearing voices and sounds that don't exist. Chronic users may have flashbacks (experiencing a drug's effects without taking the drug) and are subject to recurring bouts of anxiety and depression. Some past users have also exhibited outbreaks of violent behavior and PCP-induced psychoses (a disturbance of the user's thought processes).

Signs and Symptoms of PCP Use

The following are signs that may indicate the use of PCP:

unpredictable behavior; mood swings
intoxication
disorientation; agitation
violent, aggressive behavior
fear, terror, shivering
blank stare
rigid muscles
pupils may be dilated
mask-like facial appearance
floating pupils - appear to follow a moving object
comatose if large amounts consumed; eyes may be opened or closed

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STEROIDS

Anabolic Steroids are synthetic forms of the male sex hormone testosterone. Testosterone has many jobs in the body including stimulating the development of bone, muscle, skin, hair growth, lowering of the voice, and emotional responses. When too much testosterone is produced, the body reacts in several ways such as shutting down skeletal growth mechanisms. This can result in stunted growth, shriveled testicles, lowered sperm counts or balding. Women naturally produce very little testosterone. Consequently, when they take anabolic steroids they develop masculine characteristics—some of which are irreversible.

Steroids were originally developed in the 1930s to help maintain strength in aging men and to help those men whose bodies did not produce adequate amounts of natural testosterone. Athletes began using anabolic steroids more than 30 years ago after East Europeans and Russians dominated an international sporting event. It was later discovered that these athletes had used testosterone to strengthen themselves.

In 1960, Dr. John B. Ziegler, a Pennsylvania physician, became interested in weight training and began to experiment with steroids. He discovered that the use of steroids would somehow increase the utilization of protein in the body and form additional muscle in those who trained their bodies and were well nourished. In time, he found that he had increased his muscular size and strength at a greater rate than if he had only lifted weights and eaten heartily. The craze for steroids began after he reported his findings in a weight-training magazine.

Steroids are a controlled substance in the United States—meaning a prescription is required to obtain this drug. Physicians soon became inundated with requests for prescriptions from weight-lifters, football players, shot putters and other athletes—all hoping to improve their performance, shorten their training hours or accelerate their physical development. At first, physicians were more than willing to prescribe steroids. Dr. Robert Voy, chief medical officer for the U.S. Olympic Committee, conducted a small study that indicated 30-40% of the steroids used by body builders came from physicians. This figure has dropped since reports of the serious side effects of the drug and also because there is little evidence to show the benefits of using steroids.

In 1980, Dr. Alan J. Ryan, editor of Physician and Sportsmedicine, reviewed 25 cases in which steroids were administered to increase strength. He found many inconsistencies among the studies and concluded that there was not substantial evidence that the use of anabolic steroids in conjunction with weight training would increase muscular size and strength. However, there was strong evidence that anabolic steroids did not contribute significantly to muscular growth and strength in healthy males, and the presumed increase of muscle tissue was due to the steroids causing the body to retain salt and water. This water retention causes the user to gain weight and exhibit what many bodybuilders have labeled "that puffy look." The users usually look puffy around the face, neck, and lower body—athletes and experts know that normal muscle gain looks anything but puffy.

In a 1987 issue of Clinical Pharmacy, researchers Michael W. Kibble and Mary B. Ross reported that steroids increase muscle mass and strength "only in persons who are already weight-trained and who continue intensive training while maintaining a high-protein, high-calorie diet.

Athletes who do use steroids and actually increase their muscle size and strength do so as a result of two factors: a) they have probably been training harder, and b) the belief that the drug will produce the desired effect; thus the "placebo" effect takes place. A placebo contains no medical benefit and is used more for a psychological relief for the perceived problem. The athlete believes that the drug is doing all the work but, actually, they are training harder which is producing the desired effects.

It has also been noted that the use of steroids to gain muscle and strength does not necessarily mean the strengthening of tendons and ligaments. This imbalance could result in a serious injury.

Side-Effects and Adverse Reactions

There are over 70 side effects of steroid use ranging from liver cancer to acne. The liver, cardiovascular and reproductive systems are the hardest hit by steroids. Effects also encompass psychological reactions. These reactions include depression and aggressive behavior often called "roid rage." Side effects may not show up for years, such as heart attacks or strokes, and some may not be recognized, such as stunted growth. Other effects include:

acne
cholesterol increase
water retention
jaundice
male pattern baldness
prostrate enlargement
stunted growth
cancer
heart disease
high blood pressure
liver disease
shrunken testicles
sterility
kidney damage

Women experience side effects (some of which are irreversible) such as a lowered voice, growth of facial and chest hair, menstrual irregularities, breast reduction, fetal damage and sterility.

Other Possible Reactions to Steroid Use

Listed below are additional side effects that users may experience.

anaphylactic shock or septic shock from using injections (blood poisoning)
abdominal or stomach pains
black, tarry or light-colored stools
bone pain and muscle cramps
chills

diarrhea, nausea, vomiting (sometimes vomiting blood)
depression, fatigue, listlessness
dark-colored urine (in mature males—a frequent urge to urinate)
fever
headache (continuing)
insomnia
hives, rash
unnatural hair growth
sore tongue
feeling of abdominal or stomach fullness

Signs of Steroid Use

Athletes using steroids can be identified by:

quick weight and muscle gains
purple or red-colored spots on the body
swelling of feet or lower legs
trembling
unexplained darkening of the skin
bad breath
increased aggressive behavior ("roid rage")

Conclusion

Today, efforts are being taken to deter the use of steroids. The Food and Drug Administration, the U.S. Justice Department and the Customs Service are cracking down on the steroid black market. Athletes, body builders, and other sports officials are denouncing the use of steroids. The National Football League recently began suspending players that tested positive for the use of the drug. Champion bodybuilders and wrestlers are encouraging new comers to avoid steroids, as Lee "Mr. Olympia" Haney notes, "You'll ultimately make your best body-building gains if you avoid steroid usage and just concentrate on hard training and good nutrition."

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TOBACCO

Classification:	Mild stimulant
Method of Use:	Smoked, Orally, Inhaled
Dependence Potential:	Physically and psychologically addictive

What is Tobacco?

Tobacco is a plant which grows in a wide range of soil and climate conditions. Its nonedible leaf is dried and used to produce cigarettes, pipe tobacco, cigars, chewing tobacco and snuff.

Tobacco contains over 4,000 different gases, particles and compounds including tar, nicotine and carbon monoxide. Tobacco smoke "tar" is composed of several thousand chemicals that can damage lung tissue and cause several diseases. Some of these chemicals include: acids, alcohols, aldehydes, ketones, aromatic hydrocarbons and corrosive gases such as cyanide and nitrogen oxide.

Nicotine is found only in tobacco. It acts as a mild stimulant to the central nervous system and is what causes the addiction to tobacco products. Like other stimulants, nicotine makes blood vessels constrict, causing an increase in the heart rate and blood pressure and decreasing the user's appetite. In new smokers, nicotine often causes nausea. In large doses, nicotine can also cause tremors, quickened breathing and a decrease in the production of urine.

Carbon monoxide, which makes up about four percent of tobacco smoke, impairs the oxygen-carrying capacity of the blood to the body's tissues, literally driving the oxygen out of the red blood cells. At the same time nicotine is causing the heart to work harder, it is depriving the heart of the extra oxygen it needs. Carbon monoxide also promotes cholesterol deposits in arteries, impairs vision and judgment, and reduces attentiveness to sounds.

Cigarettes, Pipes and Cigars

Smoking is the single largest preventable cause of premature death and disability in the United States and is related to 390,000 deaths each year. According to the American Cancer Society, the average smoker consumes about a pack and a half of cigarettes a day at a cost of $900.00 a year.

Costs for medical care related to smoking are estimated at $22 billion annually, and the cost to the economy from lost productivity is about twice as much as direct health care costs.

The moment the smoke from a cigarette, pipe or cigar is inhaled, it attacks the tissues of the mouth, tongue, throat, esophagus, air passages and lungs. In the lungs, most of the inhaled compounds are retained. Once nicotine is absorbed into the lungs, its effects reach the brain within six seconds - twice as fast as mainlining heroin.

Smoking can produce a feeling of well being in habitual users; however, smoking releases epinephrine, a hormone which creates physiological stress in the smoker rather than relaxation.

Low Tar/Nicotine, Filtered and Mentholated Cigarettes

Research shows that there is no "safe" cigarette; however, the American Cancer Society suggests that those who cannot quit smoking should switch to brands with low tar and nicotine (T/N). Low T/N smokers seem to find it easier to quit smoking altogether than high T/N smokers, and research indicates that the mortality rate of low T/N smokers is 16% lower than that of high T/N smokers.

Yet, it is important to remember that low tar and nicotine cigarettes contain other poisonous compounds. Many low T/N brands have reduced taste. In an effort to satisfy smokers, manufacturers add a variety of flavoring compounds, some of which are known to be carcinogenic (cancer-causing) or toxic.

Filtered cigarettes have been shown to reduce the risks of lung cancer in smokers; however, some brands have been found to produce more carbon monoxide than unfiltered cigarettes, thereby increasing the risks of heart disease.

Mentholated cigarettes produce a cool sensation in the throat when smoke is inhaled. Research so far has not shown if menthol has any effect on the risks of cigarette smoking.

Smokeless Tobacco

The use of smokeless tobacco is increasing, especially among young males. Recent reports from the American Cancer Society indicate that smokeless tobacco is used by at least 12 million people in the United States, half of these regular users.

There are two types of smokeless tobacco: chewing tobacco and snuff. Chewing tobacco is used orally and is treated with "saucing compounds" which contain sugar, honey, or molasses and flavorings such as licorice Users usually put a golf ball-size wad of tobacco in the pouch of their cheek and suck on it. The user spits frequently to get rid of the tobacco. Snuff is processed into a coarse, moist powder and is "dipped" or placed between the cheek and gum where it stimulates the flow of saliva and mixes with it. Again, the user spits frequently to get rid of the snuff. Snuff can also be inhaled through the nose. Nicotine from the tobacco is readily absorbed in the mouth and nose and distributed throughout the body. Users become as addicted to nicotine's effects as smokers do.

Health hazards associated with smokeless tobacco include: white patches in the mouth (leukoplakia); a diminished sense of taste and smell; dental problems such as receding gums, tooth discoloration, weakened tooth enamel and bad breath; and an increased risk of cancers of the mouth. Another negative aspect is that smokeless tobacco users often turn to cigarettes because nicotine gets into the system faster when it is inhaled in cigarette smoke.

Passive Smoking

Passive or second-hand smoking is the involuntary inhaling of tobacco smoke by nonsmokers in a smoke-filled atmosphere. These nonsmokers inhale a great deal of side-stream smoke - smoke that is not drawn through the cigarette. Side-stream smoke contains much higher percentages of tar, nicotine, and noxious gases than the smoke that is exhaled by a smoker.

To some, second-hand smoke causes breathing difficulties; to others it may set off a severe allergic reaction. A report from the National Academy both Sciences says that about 2,400 lung cancer deaths a year may be caused by second-hand smoke. Other studies have found that nonsmoking wives of smoking husbands have a 35 percent higher risk of lung cancer compared with women whose husbands don't smoke.

Children in households where one or both parents smoke have a greater chance of developing certain illnesses such as colds, bronchitis, pneumonia, chronic coughs, ear infections, allergic reactions and reduced lung function. As with adults, the more smoke a child is exposed to, the higher the risk is that the child will develop complications. Also, children who grow up in homes with parents who smoke are twice as likely to become smokers themselves.

In the workplace, smoke can spread throughout the office and each workday is enough time to expose coworkers to the risk of second-hand smoke. Many business and industries have begun to restrict smoking to certain areas in an effort to combat these health hazards.

Long-Term Effects of Tobacco Use

The use of tobacco has been implicated in cancers of the mouth, larynx, pharynx, esophagus, pancreas, cervix, uterus and bladder. Smoking accounts for approximately 30 percent of all cancer deaths, is a major cause of heart-disease, an is linked to colds, gastric ulcers, chronic bronchitis, and emphysema. The American Cancer Society estimates that smoking cigarettes accounts for 85 percent of lung cancer cases among males and 75 percent among females.

Tobacco and The Lungs

In the lungs, cancerous agents of tobacco smoke attack tissue and tiny air sacs where the oxygen/carbon dioxide exchange takes place. As damage to the lungs continues, breathing capacity is destroyed, leading to emphysema. Emphysema is a noncancerous lung disease that destroys the elasticity of the lungs and impairs its ability to inhale and exhale properly. Tissue affected by emphysema can be repaired or replaced, and the smoker eventually has to gasp for breath. Emphysema kills approximately 16,000 Americans each year.

Lung cancer begins with the constant irritation of smoke on the lining of the bronchi. These hairlike cilia which filter air disappear from the lining and a mucos is secreted to take its place. This mucus then becomes trapped and is forced out of the lung by "smoker's cough."

If a smoker gives up smoking before cancerous cells are present, the bronchial lining can repair itself. Its abnormal cell growth has begun, the cancer will spread, blocking the bronchi and attacking other lung tissue. As the cancer progresses, the abnormal cells break loose from the lung and are carried by the lymphatic system to other vital organs, where new cancers begin.

The five-year survival rate for lung cancer is less than ten percent. The disease is rarely detected early enough for cure because lung cancer often shows no symptoms until it is far advanced.

Tobacco and the Heart

The American Heart Association estimates that about one-fourth of fatal heart attacks are caused by cigarette smoking, about 120,000 heart attack deaths per year.

Tobacco smoke is a major independent risk factor for fatal and non-fatal heart attacks in both men and women. The risk of heart attacks, strokes, and blood clots increases tenfold for women who both smoke and use oral contraceptives.

Smoking and Pregnancy

Tobacco has significant adverse effects for pregnant women. Smoke in the mother's bloodstream alters the heart rate, blood pressure, oxygen supply, and acid balance of the unborn child. An expectant mother who smokes two packs a day blocks off the equivalent of 25 percent of the oxygen supply to the fetus.

Pregnant smokers experience more stillbirths, spontaneous abortions, premature births, and low-weight babies than nonsmoking mothers. Children born to mothers who smoke during pregnancy may have measurable deficiencies in physical growth, learning disabilities, birth defects and chronic breathing difficulties.

Dependency and Withdrawal

The use of tobacco is addictive. According to the National Institute on Drug Abuse (NIDA), most users develop tolerance to nicotine - the need for greater amounts to produce a desired effect. Smokers become physically and psychologically dependent, and will suffer withdrawal symptoms when use is stopped. The severity of the symptoms differs from person to person. Generally symptoms subside in about seven days, but may last for weeks or months. Physical withdrawal symptoms include changes in body temperature, heart rate, digestion, muscle tone and appetite. Psychological symptoms include irritability, anxiety, sleep disturbances, nervousness, headaches, fatigue, nausea and a craving for tobacco which can continue for a long time. Reports show that one out of every five smokers has occasional cravings for more than five years after quitting.

Damage to tissues caused by smoking can be reversed if smoking stops before the onset of lung, heart or circulatory disease. After a year of nonsmoking, the risk of a heart attack begins to decline; after ten years of not smoking, the risk is about the same as that of a nonsmoker. The risk of lung cancer begins to decrease as soon as smoking stops and steadily drops to about that of a nonsmoker after 10 to 15 years.

Quitting Smoking and Tobacco Products

Quitting the use of any tobacco product is not an easy task. Cigarettes and other tobacco products often become a crutch during stressful times and a means of enhancing pleasure. For many, tobacco becomes not only a habit, but an addiction. Heavy users — the most addicted — have the greatest difficulty quitting as well as those who began using before age 20.

There are about 40 million ex-cigarette smokers in the U.S. today, so it can be done! Some users quit "cold turkey" - stopping use abruptly; others may make a pact with a friend or set a goal; while some may choose to go to a clinic or use a special program. It doesn't matter how. What's important is taking the first step - wanting to quit!

For More Information:

The Clearinghouse
Florida Alcohol and Drug Abuse Association
1286 North Paul Russell Road
Tallahassee, Florida 32301

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INFUSION
PROJECT
Preventing Alcohol & Drug Use

ONSIDER THE INFLUENCE

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More than 12% of 6th graders have tried alcohol.

One in six 13 year olds has used marijuana.

One in three 6th graders have felt pressure to use crack cocaine.

STATISTICS abound to remind educators of the growing threat and presence of drugs among middle school students. But the fact is that early adolescents who are the emerging targets of the drug culture also present educators with a challenging opportunity... a chance to prepare those students to resist the pressure and threats *before* drugs become part of their young lifestyle.

The potential for positive influence at a critical time in the lives of middle schoolers is enormous for educators, and particularly for classroom teachers.

Drug awareness, education and prevention have traditionally been handled by such middle school educators as health teachers, guidance counselors or administrative personnel. The Infusion Project seeks to broaden the scope of that responsibility. It provides a means for teachers in other disciplines to exert their influence against drug and alcohol use, within the context of their own curriculum.

AN INTERACTIVE APPROACH TO ALCOHOL AND DRUG PREVENTION

Research has confirmed that the most effective education for middle school students is that which involves them interactively in the learning process. These students need more than facts; they need relevance which will motivate processing those facts to affect their daily lives. We know that participatory, interactive learning accomplishes this goal.

One type of interactive learning is *infusion learning*. We define infusion learning as the integration or infusion of a topic into the classroom presentation of pre-planned academic and other courses.

The infusion of drug use prevention material through interactive learning also relies heavily on peer interaction as part of the learning process. This strategy greatly reduces student resistance to accepting drug-related information and facilitates processing it into their individual decision-making processes.

A Ready-to-Use Classroom Program

This project has been developed by a team of educators which includes teachers like you – classroom teachers who understand the need for easy-to-apply, ready-to-implement help in a complex and sensitive area of study. It is modular in concept, and filled with examples, suggestions and ideas you can adapt to your classroom situation.

We invite you to consider the potential you have for directing young lives away from drug use... to consider the influence you can exert toward molding drug-free lives... and to consider this project as a practical blueprint for realizing both of these goals in your classroom.

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How Project Modules Facilitate Infusion

THE module series, of which the project consists, is comprised of lessons which can be integrated or infused into an existing middle school curriculum. Specific areas for which modules exist include such widely diverse subjects as geography, language arts and health. Separate modules have also been developed for use in exceptional education classes.

Modules are not "drug lessons." More specifically, they are not meant to *add* activities to an already busy class period, but to be infused with existing classroom study units; to give the student an opportunity to respond to that information and demonstrate understanding; and to enable the student to process information into his or her individual lifestyle.

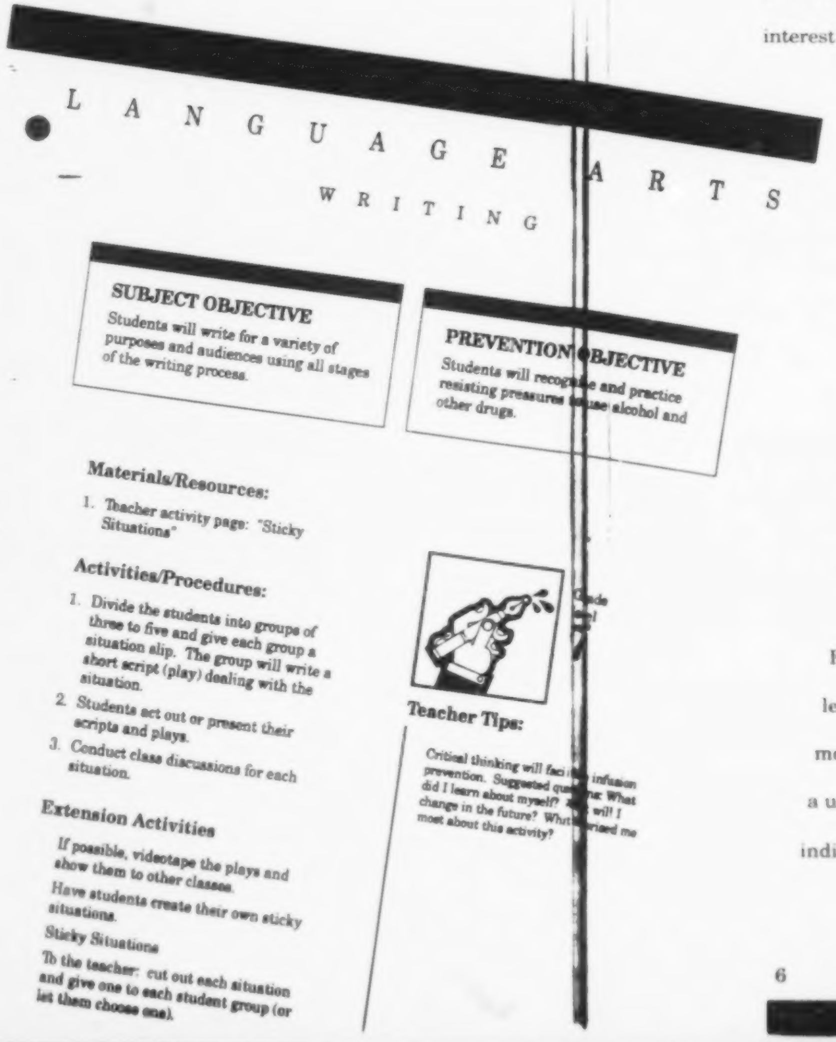
A SAMPLE MODULE GUIDESHEET demonstrates how the project modules are "ready-to-use." Each teacher is encouraged to follow the details of the guidesheets to whatever extent he or she feels is appropriate. This built-in flexibility takes advantage of the classroom teacher's discretion and creativity in providing prevention learning best suited for the individual classroom.

TO ASSIST THE CLASSROOM TEACHER, EACH MODULE PROVIDES:

1. Two-fold Module Objectives

Subject Objective – This objective should coincide with that of your own unit plan. Your Subject Objective, as prescribed on module guidelines provided, would be to demonstrate knowledge or understanding of some facet of geography, math or other class subject material. This objective is one you have already scheduled in your lesson plans.

Prevention Objective – This parallel objective relates to some area of prevention-related facts or information, exposure to which reinforces the danger of drug or alcohol use.* A typical Prevention Objective is, "Students will recognize the major effects of alcohol and/or tobacco use on each body system."



L A N G U A G E A R T S — W R I T I N G

SUBJECT OBJECTIVE
Students will write for a variety of purposes and audiences using all stages of the writing process.

PREVENTION OBJECTIVE
Students will recog e and practice resisting pressures use alcohol and other drugs.

Materials/Resources:

1. Teacher activity page: "Sticky Situations"

Activities/Procedures:

1. Divide the students into groups of three to five and give each group a situation slip. The group will write a short script (play) dealing with the situation.
2. Students act out or present their scripts and plays.
3. Conduct class discussions for each situation.

Extension Activities

If possible, videotape the plays and show them to other classes.

Have students create their own sticky situations.

Sticky Situations

To the teacher: cut out each situation and give one to each student group (or let them choose one).

Teacher Tips:

Critical thinking will faci infusion prevention. Suggested qu : What did I learn about myself? will I change in the future? What rised me most about this activity?

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* For the purposes of this project, the term "drug" includes any depressant, stimulant, hallucinogen, narcotic or other substance which alters normal functions of the mind or body and/or which may be addictive, and/or which has the potential to cause physical, mental or psychological damage to the user. This includes alcohol, caffeine, nicotine and prescription drugs, as well as illicit drugs.

2. Materials/Resources

Teachers receive an itemized list of materials required to achieve the Subject and Prevention Objectives of each respective module. They will also be directed to appropriate reference material, which is either attached to the module guidesheet or is readily available in the school learning resource/media center.

3. Procedures/Activities

Teachers are provided a specific list of suggested student activities, discussion topics and classroom procedures which target achievement of both Prevention and Subject Objectives. Teachers may use any or as many of the items on this list as they wish... modify them to meet specific classroom needs... or develop their own activities which they feel will help reach those same objectives.

4. Extension Activities

These are suggested additional classroom or out-of-class activities which take advantage of demonstrated student interest in a specific subject area. Extension Activities could range, for example, from written reports on recovering celebrity addicts and alcoholics to home-videotaped television commercials depicting alcohol and over-the-counter drugs as essential to success and well-being.

5. Teacher Tips

These are other tips, suggestions or practical bits of information which help the teacher in implementing this module and making it more effective.

In this area, special attention is given to ways to facilitate student *processing* of information and ideas they are receiving about alcohol and other drug use prevention. Processing throughout these lessons is intended to stimulate critical thinking, to cause students to identify the *personal* meaning and applications of the lesson's teachings to their lives beyond the classroom.

Finally, evaluation is as essential to measuring the effectiveness of this project as it is to any classroom lesson. We have not included any specific evaluation guidelines in the modules, however, because each module will be interpreted and presented differently by each teacher. And each classroom situation presents a unique set of circumstances. Accordingly, determining an appropriate means of evaluation is left to the individual teachers.

World
Geography

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Develop Your Own Modules

The Infusion Project is structured to recognize that each classroom situation is unique in its needs for drug and alcohol prevention education. For that reason, you are urged to use each module as a starting point from which to spark your own creativity.

Regardless of the subject, drug and alcohol prevention information can be infused into classroom activities so that both the Subject Objectives and Prevention Objectives can be achieved.

THE FOLLOWING ARE SOME TYPICAL SUBJECT-SPECIFIC EXAMPLES:

Language Arts:

- Reports on prominent writers whose literary careers were curtailed by the use of drugs or alcohol, i.e., F. Scott Fitzgerald, Edgar Allen Poe, etc.;
- A study of the roles which drugs and alcohol play in literature;
- Spelling definition and consequence studies of types of drugs.

Mathematics:

- Study of percentages of alcohol in the body and levels of effect on mind-and-body function;
- Analysis of the costs to business of employee alcohol and drug use.

Geography:

- Plotting routes of illegal drug trade from producing countries to specific U. S. cities;
- Gaining insight into the societal, governmental, and economic problems caused by alcohol and drug abuse.

Science:

- Chemical properties of nicotine, alcohol and caffeine;
- The application of the scientific method to decisions on drugs;
- The long-term effects of alcohol on the body.

Physical Education/Health:

- Effects of steroid use by athletes;
- The positive role of fitness through sports participation;
- Self-esteem discussions for those who are not sports talented.

Social Studies:

- A discussion of drugs in the community related to violent crime;
- A study of the falling prestige of smoking in today's society;
- A review of how public attitudes have changed and matured about drinking, especially driving and drinking.

The wealth of resources available at the local level, in media centers, in guest speakers, even in the daily headlines, lends itself to classroom teachers creating their own modules, and tailoring those modules to the specific needs of each class.

PROGRAM MODULE CRITERIA

The following is a checklist of criteria which can be used by individual classroom teachers in developing their own drug and alcohol prevention learning modules.

THE PROPOSED MODULE

1. Can be easily infused into the subject area;

2. Includes a Prevention Objective *and* a Subject Objective into which it can be infused;

3. Promotes higher level thinking skills;

4. Provides knowledge, insight and a proactive personal application through an opportunity for processing

5. Helps build such life skills as:
    - Problem solving
    - Critical thinking
    - Decision making (making low-risk choices)
    - Communication (assertiveness training, resistance skills)
    - Peer selection
    - Self-improvement
    - Stress reduction
    - Consumer awareness of attitude manipulation

6. Strongly emphasizes prevention of the gateway drugs: tobacco, alcohol and marijuana;

7. Promotes healthy alternatives to alcohol and drug use;

8. Addresses the influence of social systems, i.e., family, peer group, media;

9. Utilizes the principles of public prevention programs (such as "Stop Smoking" campaigns):
    - The focus on short-term social consequences
    - Sensitization to peer and media pressures to smoke or drink
    - Conscious resistance to those pressures, armed with drug information, determination and support
    - High levels of audience participation
    - Role-playing and other classroom exercises to practice behaviors, including resistance behavior

10. Addresses the special problems of high-risk students:
    - antisocial behavior, academic failure, nonsupportive family/home environment.

ALL INFUSION MODULES SHOULD INCLUDE THE COMPONENT OF PROCESSING.

*Processing is Integral to a central goal of the Skills for Adolescence program – teaching critical thinking. Students are actively involved in their learning. They do, see, feel, think, and hear. Through processing, they are actively involved in figuring out what they are learning and what it means to them outside the classroom.

Processing throughout and at the end of lessons *is* intended to cause students to identify the personal meaning and application of the lesson's teachings.

Should students' responses suggest that they have come to inaccurate or inappropriate conclusions (i.e., there are no harmful effects associated with drinking alcohol), it's up to the teacher to use additional questions, statements of observation, use problem-solving or extend (review or repeat) the lesson to achieve the goal of the lesson.

A simple way to look at the role of processing in a lesson is to think of a classroom session as having the three parts listed below. Processing is represented by the last two:

What?	The activity; a hands-on experience, a movie, a discussion.
So What?	Identify thoughts, feelings, reactions and what may have triggered them, insights, surprises, questions, learnings.
Now What?	Apply information/insights/learnings to other situations. Project how to use in future situations.

THE FOLLOWING suggestions should contribute to successful processing:

Move from private to public with respect to the answering environment. In the early stages, ask students to respond in the lowest risk environment (think the answer), moving up the scale to the most amount of risk as students become more comfortable with these types of questions. The following scale depicts low to high risk environments:

Think the answer – Write it but don't share it – With a partner – In trios – In a small group – In front of the entire class

Address your question to the group, not to a specific student.

Use "Wait time." Ask your question, then wait. Count slowly to seven, then rephrase the question. Try to avoid answering the question yourself or calling on the "students with all the answers."

Accept several responses to your question. If you stop at one, you're telling students there was one correct response to the question.

Acknowledge students' responses. Vary your comments while being careful not to advise, evaluate, or moralize.

Summarize students' responses at the end of each question (tell them what they told you).

When students' responses contradict intended learnings from the session or violate responsible behavior, remind yourself your asking for opinions; everyone has a right to his or her own. Reflect feelings, restate the response or ask others for their opinions (be careful not to set up an attack situation which victimizes an individual).

If the activity bombs, play Johnny Carson. He is often at his best when he's "dying up there!" Here is a real opportunity to practice problem solving as a part of processing.

*Adapted from Lions Quest Skills for Adolescence Workshop Guidebook, 1989. Quest International, 537 Jones Rd., P.O. Box 566, Granville, OH 43023-0566.

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Peer Participation and Support – Redefining Acceptance

THIS PROJECT has been developed to infuse the lessons of prevention into a variety of academic classrooms, combining knowledge of drugs and the consequences of use with academic subject matter, and enhancing the learning experience, wherever possible, with peer participation and open discussion.

According to research, peer programs are dramatically more effective than programs which rely on "knowledge-only" strategies, or which use "affective-only" activities, i.e., self-image enhancement, value development, self-esteem building, etc. Acceptance by one's peers is perhaps the primary day-to-day goal motivating middle school-age youngsters.

Peer participation is based on the fact that peer pressure outside the classroom is the single most powerful factor in inducing initial drug use and experimentation among young adolescents. A drug use prevention program which neutralizes peer pressure by encouraging a peer dialog of encouragement and support is far more likely to achieve long-term results.

Through a variety of activities, this project gives students the intellectual ammunition to decide against drug use; it makes “just saying no” a peer-acceptable action which makes obvious sense, and which needs no justification or defense in the schoolyard or on the street.

OPENING CHANNELS OF COMMUNICATION AND INFORMATION

Students in the middle school grades often have a need to communicate about ambiguities in their stance on drugs. Youngsters who would never ask a drug-related question at home will often willingly seek information once the subject is broached in an open classroom. The project encourages that open discussion, which the teacher moderates on an objective, non-judgmental basis.

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Consider the Potential for Today and for a Lifetime

The Infusion Project is predicated on three facts:

1. That middle school students making decisions about drugs desperately need information and support to counter the societal, media and peer pressure they are exposed to beyond the classroom door;

2. That classroom teachers, by virtue of daily contact, can exert enormous influence on that decision-making process; and...

3. That through the use of interactive infusion learning, ideas and attitudes can be instilled *as an integral part of existing academic plans and objectives.*

As a classroom teacher who instructs and influences the lives of hundreds of middle school youngsters every school day, you have an opportunity to guide your students away from experimentation with that first cigarette or wine cooler... away from peer temptations to try marijuana, the currently fashionable designer drugs or crack cocaine.

In the long term, you hold the potential to affect young lives at a crucial time in their development, enabling today's youngsters to make decisions which will help forge them into productive citizens well into the next century.

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PREVENTION LEARNING REFERENCE AND RESOURCE GUIDE

National Clearinghouse for Alcohol and Drug Information (NCADI)

P.O. Box 2345
Rockville, MD 20852
(301) 468-2600

Information and services for the general public on questions about all types of drug and medicine use and abuse. NCADI is especially designed to serve community leaders, youth workers, parents, health care providers, and concerned citizens. **This is the chief National Information Center for citizen information on substance issues.**

Drug Alliance Office

ACTION
806 Connecticut Avenue, N.W.
Washington, D.C. 20525
(202) 634-9759

Voluntary projects to provide prevention programs and staff via VISTA, Foster Grandparents, and Retired Senior Volunteers Program (RSVP). These Programs enlist the activity of trained private citizens who commit to joining programs and contributing full- or part-time effort for a specified time in an area to which they are assigned by ACTION.

Drug Prevention Program for Department of Defense Schools

Office of Dependent Schools
Hoffman Building I
2461 Eisenhower Avenue
Alexandria, VA 22331-1100
(703) 325-0660

Prevention programs in the Department of Defense's schools for personal dependents.

National Institute on Alcohol Abuse and Alcoholism (NIAAA)

Department of Health and Human Services
Room 14C-17
5600 Fishers Lane
Rockville, MD 20857
(301) 443-2954

Information and research on alcoholism and alcohol-related problems of children and adolescents, and school-and community-based intervention programs.

National Institute on Drug Abuse (NIDA)

Department of Health and Human Services
Room 10-04
5600 Fishers Lane
Rockville, MD 20857
(301) 443-4577

Information, research and programs on all aspects of drug abuse prevention and treatment.

National Institute of Mental Health (NIMH)

Department of Health and Human Services
Room 15C-05
5600 Fishers Lane
Rockville, MD 20857
(301) 443-4515

Research on the stages of dependency, prevention and intervention, and the links between substance abuse and delinquent behavior.

Office of Smoking and Health (OSH)

Public Health Service
Technical Information Center
Park Building
5600 Fishers Lane
Rockville MD 20857
(301) 443-1690

Information on all aspects of tobacco and its effects, methods of ingestion, and prevention and treatment programs.

Drug Enforcement Administration (DEA)

Demand Reduction Section
Department of Justice
Room 1203
1405 Eye Street, N. W.
Washington, D. C. 20537
(202) 786-4096

Sports Drug Awareness Program and drug abuse education and prevention publications.

Safe Schools Program

National Institute of Justice
Room 805
633 Indiana Avenue, N.W.
Washington, D.C. 20531
(202) 272-6040

A program to assist school administrative personnel in developing and maintaining safe learning environments at the school building level.

National School Safety Center

Office of Juvenile Justice and
Delinquency Prevention
Department of Justice
Suite 200
16830 Ventura Boulevard
Encino, CA 91436
(818) 377-6200

A project to study the frequency and patterns of delinquency at the school building level, identify possible remedies, and promote crime prevention and the restoration of discipline. Substance abuse as well as other causes of delinquency are studied.

Drug and Alcohol Abuse Prevention and Treatment

Office of Juvenile Justice and
Delinquency Prevention (OJJDP)
Department of Justice
Room 758
633 Indiana Avenue, N.W.
Washington, D.C. 20531
(202) 724-8491

Assistance to communities experiencing serious substance abuse problems among children and youth.

Narcotics Education, Inc.

This organization publishes pamphlets, books, teaching aids, posters, audiovisual aids, and prevention magazines designed for classroom use: *WINNER* for Preteens and *LISTEN* for teens.

6830 Laurel Street, N.W.
Washington, D.C. 20012
1-800-548-8700
Washington D.C. area (202) 722-6740

Parents' Resource Institute for Drug Education, Inc. (PRIDE)

This national resource and information center offers consultant services to parent groups, school personnel, and youth groups, and provides a drug-use survey service. It conducts an annual conference; publishes a newsletter, a youth group handbook, and other publications; and sells and rents books, films, videos, and slide programs. Membership is $20.00.

The Hurt Building,
50 Hurt Plaza,
Suite 210,
Atlanta, GA 30303
(404) 577-4500; 1-800-241-9746

Schools Without Drugs: The Challenge, U.S. Department of Education

Cosponsored by 14 national education, law enforcement, and parent organizations. The Challenge Program seeks a commitment from schools and their local communities to combat alcohol and drug use. Schools that enroll in The Challenge receive a banner and the bimonthly newsletter, which provides information on research and practice related to prevention and intervention.

Schools Without Drugs:
The Challenge,
U.S. Department of Education,
Washington, D.C. 20202
(202) 732-4161

American Council for Drug Education (ACDE)

ACDE organizes conferences; develops media campaigns; reviews scientific findings; publishes books, a quarterly newsletter, and education kits for physicians, schools, and libraries; and produces films.

204 Monroe Street,
Suite 110,
Rockville, MD 20852
(301) 294-0600

Southeast Regional Center for Drug-Free Schools and Communities

University of Louisville
School of Education, Room 315
Louisville, KY 40292
(502) 588-6852

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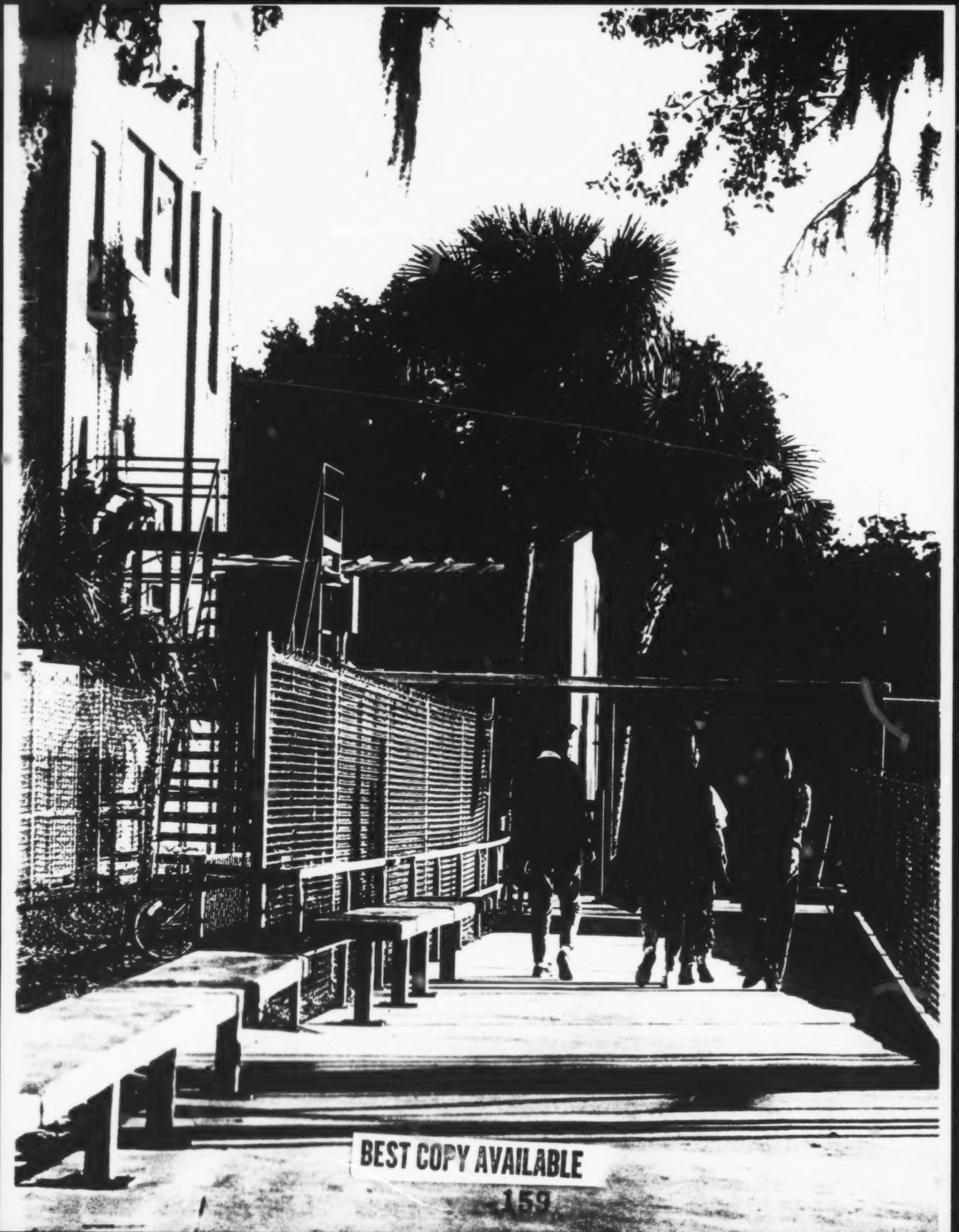

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